GEOMETRY – MODEL No 1

[Q1] *Choose the correct answer:*

(1) The area of square whose diagonal 8 cm is .... cm^2

a) 128 b) 64 c) 32 d) 16

(2) The side lengths 4 cm , 5 cm , 3 cm are sides of .... triangle

a) Isosceles b) Acute c) Right d) Obtuse

(3) If the projection of line segment on a straight line is a point, then the line segment .... on straight line

a) Parallel b) Perpendicular c) Coincide d) bisects

(4) If the area of a rhombus is 40 cm^2, and length of one of its diagonals is 10 cm, then the other diagonal is .... cm

a) 80 b) 50 c) 4 d) 8

(5) The area of rectangle whose dimensions 4 cm , 9 cm .... the area of rhombus whose diagonals 12 cm , 5 cm

a) > b) = c) < d) ≤

(6) The ratio between corresponding sides in two similar polygons is 1 : 3, if the perimeter of the smallest one 15 cm, then the perimeter of the greater polygon is .... cm

a) 5 b) 45 c) 60 d) 75

[Q2] Complete each of the following:

6) XYZL is a parallelogram, area of Δ XYZ = 18 cm^2, then the area of parallelogram XYZL equals .... cm^2

7) In Δ ABC, if (AB –AC) (AB + AC) < $(BC)^2$, then ∠ C is ....

8) Two parallel straight lines to third are ....

9) Number of axes of symmetry of an equilateral triangle is ....

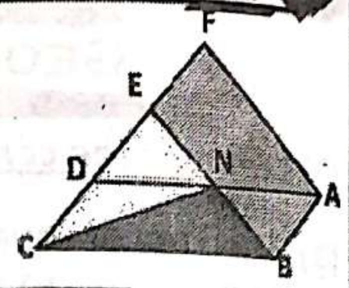
10) If two triangles drawn on same base are equal in area, then its vertices on the straight line ....

[Q3] A) In the opposite figure:

ABCD, ABEF are two parallelograms

Prove that:

Area of Δ NBC = area Parallelogram of ABEF



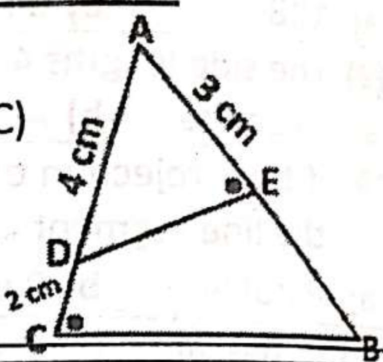
B) In the opposite figure:

Δ ABC, D ∈ $\overline{AC}$. E ∈ $\overline{AB}$, m (∠AED) = m (∠C)

AE = 3 cm, AD = 4 cm, CD = 2 cm

① Prove that: Δ ABC ~ Δ AED

② Find the length of $\overline{EB}$



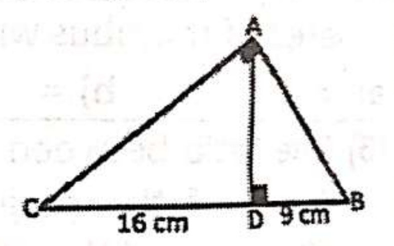
[Q4] A) A trapezium of area 180 cm², its height 12 cm, the ratio between length of its bases 3 : 2. Find length of its bases.

B) In the opposite figure:

Δ ABC if right triangle at A,

$\overline{AD} \perp \overline{BC}$, BD = 9 cm,

CD = 16 cm, find length of $\overline{AD}$, $\overline{AB}$, $\overline{AC}$



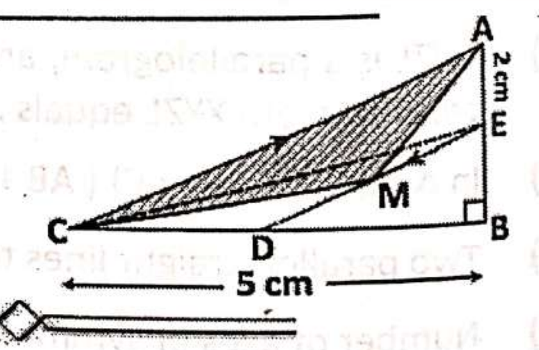
[Q5] A) Δ XYZ, XY = 12 cm , YZ = 20 cm , XZ = 16 cm, determine the type of triangle according to its angles

B) In the opposite figure:

Δ ABC right at B, $\overline{ED}$ // $\overline{AC}$

AE = 2 cm , BC = 5 cm

Find area of Δ AMB



End of the questions

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GEOMETRY – MODEL No 2

[Q1] *Choose the correct answer:*

(1) The area of rhombus whose diagonals 10 cm , 12 cm is ..... cm^2

a) 240 b) 120 c) 60 d) 30

(2) In Δ ABC, $(AC)^2 = (AB - BC)(AB + BC)$, then m ($\angle$B) ....$90^\circ$

a) > b) ≥ c) = d) <

(3) Two perpendicular straight line on third are ....

a) Parallel b) Perpendicular c) Coincide d) Intersecting

(4) The length of diagonal of square whose area 50 cm^2 is .... cm

a) 100 b) 20 c) 10 d) 5

(5) Length of projection of line segment on straight line parallel to it .... length of line segment.

a) > b) = c) < d) ≤

(6) If ABCD ≃ XYZL, $m(\angle A) = 80^\circ$, $m(\angle Z) = 50^\circ$, $m(\angle D) = 120^\circ$, then $m(\angle B)$ = ...°

a) 90 b) 110 c) 130 d) 250

[Q2] Complete each of the following:

6) If Δ ABC ≃ Δ XYZ, and AB : XY = 2 : 5, AC = 8 cm, then XY = ... cm

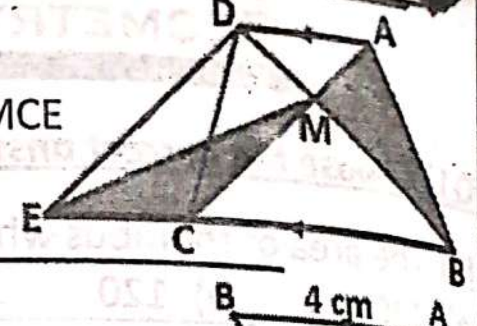
7) Area of square of side length 8 cm = ... cm^2

8) In Δ ABC, D is midpoint of BC, Area of Δ ABD = 20 cm^2, then area of Δ ABC = ... cm^2

9) If the ratio of enlargement for two similar triangles equal one, then the two triangle are ....

10) The isosceles triangle has .... Axes of symmetry

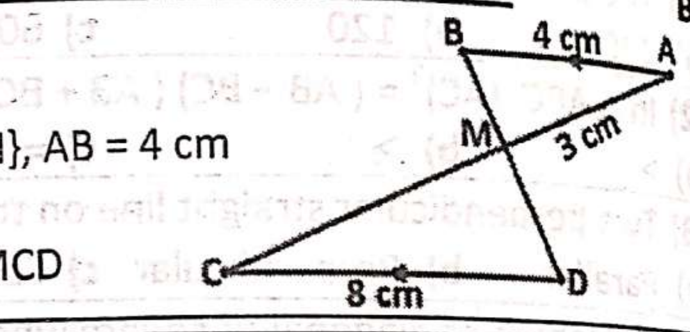
[Q3] A) In the opposite figure:



$\overline{AD} \parallel \overline{BC}$, area of Δ ABM = area of Δ MCE

Prove that: $\overline{AC} \parallel \overline{DE}$

B) In the opposite figure:



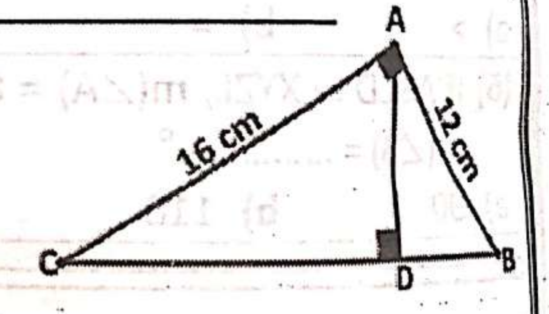
$\overline{AB} \parallel \overline{DC}$, $\overline{AC} \cap \overline{BD}$ = {M}, AB = 4 cm

MA = 3 cm, DC = 8 cm

Prove that: Δ MAB $\simeq$ Δ MCD

[Q4] A) The area of trapezium is 80 cm^2, its height 8 cm, length of one of its parallel bases is 15 cm, find the length of other base.

B) In the opposite figure:



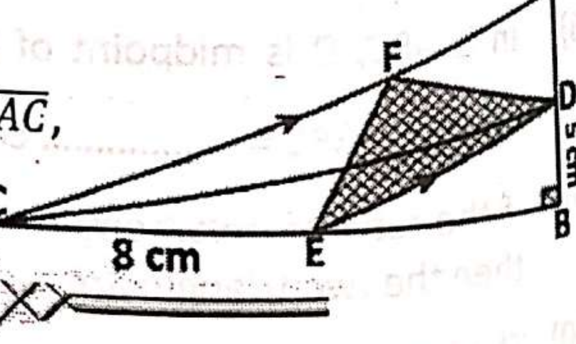
Δ ABC right at $\angle$ BAC, $\overline{AD} \perp \overline{BC}$,

AB = 12 cm, AC = 16 cm

Find length of $\overline{BC}$, $\overline{AD}$

[Q5] A) In Δ LMN, LM = 5 cm, MN = 7 cm , LN = 6 cm, determine the type of triangle according to its angles

B) In the opposite figure:



Δ ABC is right at ($\angle$ B), $\overline{DE} \parallel \overline{AC}$,

DB = 5 cm , EC = 8 cm

↳ Find the area of Δ FDE

End of the questions

GEOMETRY – MODEL No 3

[Q1] *Choose the correct answer:*

(1) The two triangle are equal in area and drawn in same base in one side of it, then their vertices on straight line .... base

a) Perpendicular b) Bisects c) Parallel d) Transversal

(2) The area of triangle whose base 8 cm and its corresponding height 5 cm = ...cm^2

a) 80 b) 40 c) 20 d) 10

(3) The angles of two similar polygons are .... measure

a) Equal b) Different c) Proportional d) Alternative

(4) ....is a parallelogram with perpendicular diagonal

a) Square b) Rectangle c) Rhombus d) Trapezium

(5) The two base angle of an isosceles triangle are ....

a) Complementary b) Supplementary c) Adjacent d) Congruent

(6) The area of square whose diagonal 8 cm equal .... Cm^2

a) .... b) .... c) .... d) ....

[Q2] Complete each of the following:

6) The area of rhombus equals half product of ....

7) In Δ XYZ, $(XY)^2 = (YZ)^2 - (XY)^2$, then m ($\angle$ ......) = 90°

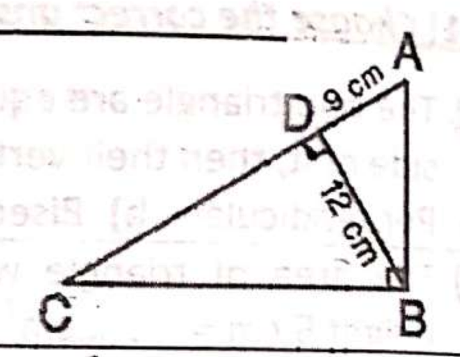
8) If A $\in$ straight line L, then projection of A on L is ....

9) $\Delta ABC \simeq \Delta XYZ$, and AB = 5 cm , XY = 3 cm
Then perimeter of Δ ABC : perimeter of Δ XYZ = ... : ....

10) The lengths of two parallel bases in trapezium are 10 cm, 6 cm, then the length of its middle base is .... c m

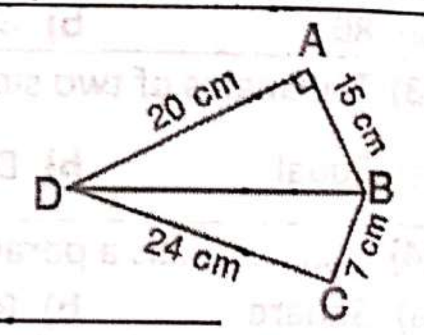
[Q3] A) Find the height of rhombus whose area 96 cm^2 and lengths of its diagonals 12 cm, 16 cm

B) In the opposite figure:



Δ ABC right at B, $\overline{BD} \perp \overline{AC}$,
If BD = 12 cm, AD = 9 cm
Find length of $\overline{DC}$

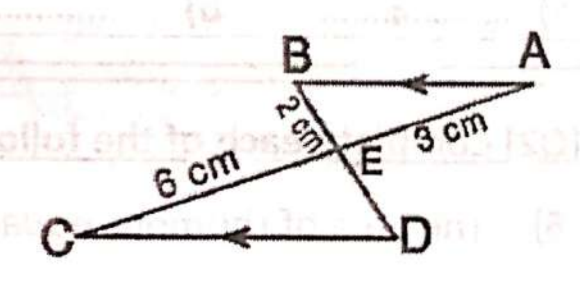
[Q4] **A) In the opposite figure:**



m ($\angle$ A) = 90°, AB = 15 cm , AD = 20 cm
BC = 7 cm, CD = 24 cm
Prove that: m ($\angle$ C) = 90°

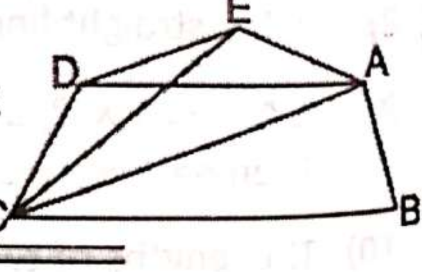
B) Find the area of trapezium with two parallel bases 8 cm, 10 cm and its height 6 cm

[Q5] **A) In the opposite figure:**



$\overline{AB} \parallel \overline{CD}$, $\overline{AC} \cap \overline{BD}$ = { E }
AE = 3 cm, BE = 2 cm, CE = 6 cm
① Prove that: Δ ABE $\simeq$ Δ CDE
② Find the length of $\overline{ED}$

B) In the opposite figure:



Area of figure ABCD = area of figure ABCE

Prove that: $\overline{AC} \parallel \overline{ED}$

End of the questions

GEOMETRY – MODEL No 4

[Q1] *Choose the correct answer:*

(1) Area of square of diagonal 10 cm is .... Cm^2

a) 100 b) 50 c) 40 d) 20

(2) In Δ ABC, $(AC)^2 = (AB)^2 + (BC)^2 + 9$, then m (∠B) ....90°

a) > b) = c) < d) ≤

(3) In Δ ABC, $\overline{AD} \perp \overline{BC}$, then projection of $\overline{AD}$ on $\overleftrightarrow{BC}$ is ....

a) $\overline{BD}$ b) $\overline{CD}$ c) $\overline{BC}$ d) { D }

(4) The area of rhombus 42 cm^2 and one of its diagonals 12 cm, then the other diagonal is ....

a) 14 b) 7 c) 3.5 d) 2

(5) In a Parallelogram, length of two adjacent sides 7 cm , 9 cm and smaller height 4 cm, then its area .... cm^2

a) 14 b) 18 c) 28 d) 36

(6) In Δ ABC right at B, m (∠C) = 30°, AB = 5 cm, then AC = ... cm

a) 5 b) $5\sqrt{3}$ c) 10 d) 15

[Q2] Complete each of the following:

6) If the drawing scale of two similar triangles 2 : 3 and measure of one of angles of smaller triangle is 80°, then the measure of corresponding angles in greater triangle equals ....°

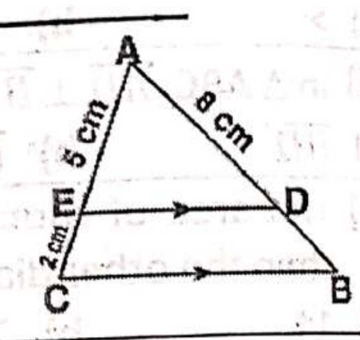
7) The measure of two supplementary angles is ....°

8) If Δ ABC ≃ Δ XYZ and m(∠B) = 30°, m(∠Z) = 50°, then m (∠X) =..

9) Length of projection of line segment on straight line parallel to it .... Length of line segment

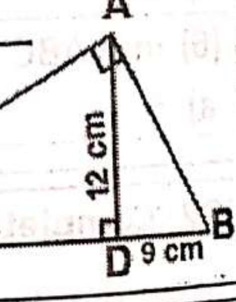
10) If a straight line cut two parallel lines, then each two alternative angles are ....

[Q3] **A) In the opposite figure:**



ABCD is a Parallelogram,
And $\overline{XY} \parallel \overline{AB} \parallel \overline{DC}$
Prove that:
Area of figure XZYC = $\frac{1}{2}$ area of Parallelogram ABCD

B) In the opposite figure:



$\overline{DE} \parallel \overline{BC}$, AE = 5 cm , EC = 2 cm
AD = 8 cm, prove that: Δ ABC $\simeq$ ADE
Then find the length of $\overline{BD}$

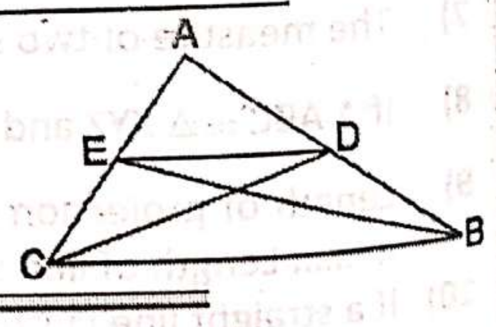
[Q4] A) Find the height of a trapezium whose middle base 12 cm and its surface area 60 cm^2, if one of its bases is twice the other, find length of each one?

B) In the opposite figure:

Δ ABC right at B, $\overline{AD} \perp \overline{BC}$, AD = 12 cm, BD = 9 cm, Find length of $\overline{DC}$, $\overline{AC}$

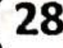
[Q5] A) Determine the type of triangle according to its angles if its sides lengths are AB = 10 cm, AC = 6 cm, BC = 8 cm

B) In the opposite figure:



Area of Δ ABE = area of Δ ADC

Prove that: $\overline{DE} \parallel \overline{BC}$



End of the questions

GEOMETRY – MODEL No 5

[Q1] *Choose the correct answer:*

(1) Area of triangle equal .... Area of Parallelogram with common base and between two parallel lines one of them carrying this base

a) Same b) Half c) Double d) Quarter

(2) The height of triangle whose area 36 cm^2 and its base 9 cm is..

a) 2 cm b) 4 cm c) 8 cm d) 12 cm

(3) Length of projection of line segment on straight line parallel to it .... Length of line segment

a) > b) = c) < d) ≤

(4) Area of square whose diagonal 6 cm is .... cm^2

a) 12 b) 18 c) 36 d) 72

(5) Sum of interior angles of triangle is ....°

a) 180 b) 360 c) 540 d) 720

(6) An isosceles triangle has ....axes of symmetry

a) Zero b) One c) Two d) Three

[Q2] Complete each of the following:

6) The median of triangle divide it into two triangles ....

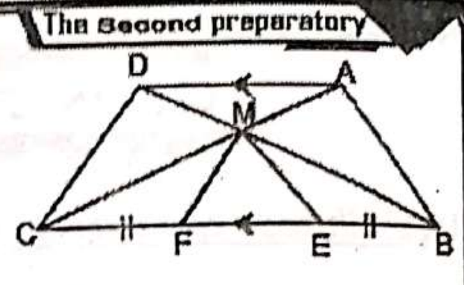
7) Δ ABC, AB = 8 cm, BC = 6cm, AC = 10 cm, type of ∠A is............

8) The base of Parallelogram whose area 42 cm^2 and its height 6cm is ....

9) Two triangles are similar if their angles ....

10) If the ratio of similarity between two triangles equal one, then two triangles are ....

[Q3] **A) In the opposite figure:**

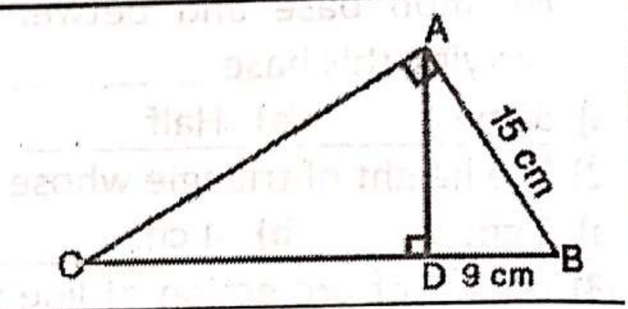


$\overline{AD} // \overline{BC}, \overline{BE} = \overline{FC}$

Prove that:

Area of figure ABEM = area of figure DCFM

B) In the opposite figure:

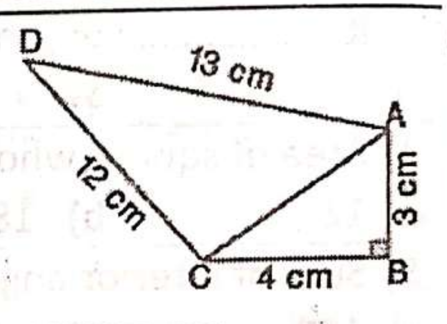


Δ ABC is right at A, $\overline{AD} \perp \overline{BC}$

If AB = 15 cm, BD = 9 cm

Find length of BC

[Q4] **A) In the opposite figure:**



m ($\angle$B) = 90°, AB = 3 cm, BC = 4 cm

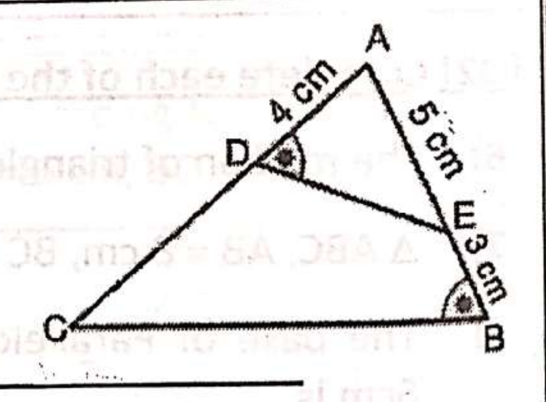
DA = 13 cm, DC = 12 cm

Prove that: m ($\angle$ ACD) = 90°

B) Find height of a trapezium whose area 40 cm^2, and lengths of its two parallel bases are 7 cm , 9 cm

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[Q5] **A) In the opposite figure:**



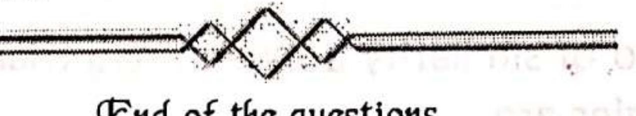
AE = 5 cm, AD = 4 cm, BE = 3 cm

And m ($\angle$B) = m ($\angle$ADE)

① Prove that: Δ ABC $\simeq$ Δ ADE

② Find length of $\overline{DC}$

B) Find the area of rhombus whose diagonals 8 cm, 6 cm and find length of its height.



End of the questions

GEOMETRY – MODEL No 6

[Q1] Choose the correct answer:

(1) If area of rhombus 40 cm^2, one of its diagonals 10 cm, then the length of other diagonal .... cm

a) 5 b) 6 c) 8 d) 10

(2) If the area of square 50 cm^2, then length of its diagonal ...... cm

a) 5 b) 10 c) 25 d) 100

(3) In Δ ABC, if $(AB)^2 - (BC)^2 = (AC)^2$, then m ($\angle$ B) ....

a) Acute b) Right c) Obtuse d) Straight

(4) If area of triangle 30 cm^2, its height 5 cm, then its base .... Cm

a) 6 b) 12 c) 18 d) 5

(5) Projection of point (5 , 3) on X – axis is ....

a) (5 , 3) b) (–5 , 3) c) (5 , 0) d) (0 , 3)

(6) If the drawing scale of two similar triangles 1 : 2 and measure of one of angles of smaller triangle is 50°, then the measure of corresponding angles in greater triangle equals ....°

a) 25 b) 50 c) 100 d) 150

[Q2] Complete each of the following:

6) Area of Parallelogram 30 cm^2, its base 6 cm, its height ....

7) In Δ ABC right at A, $\overline{AD} \perp \overline{BC}$, then AB × ..... = BC × ....

8) Area of Parallelogram equal .... Area of triangle with common base and between two parallel lines one of them carrying this base

9) Two triangles area similar if their corresponding sides are ....

10) The median of triangle divide it into two triangles ....

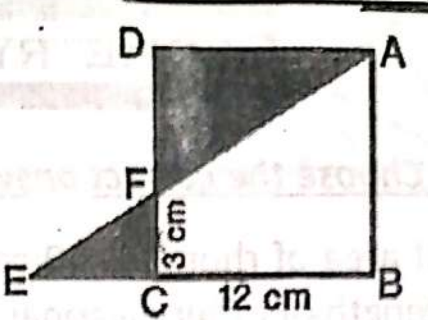
[Q3] A) In the opposite figure:

ABCD is square of side 12 cm,

CF = 3 cm, $\overline{AE} \cap \overline{CD} = \{F\}$

① Prove that: Δ ADF ≃ ECF

② Find length of $\overline{EC}$

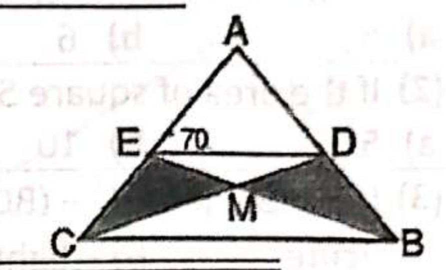


B) In the opposite figure:

If area of Δ DBM = area of Δ CME

And m (∠ AED) = 70°

Find m (∠ ACB)



[Q4] A) The ratio between two parallel bases in a trapezium 2 : 3, and length of its middle base 30 cm, find:

① Length of its bases

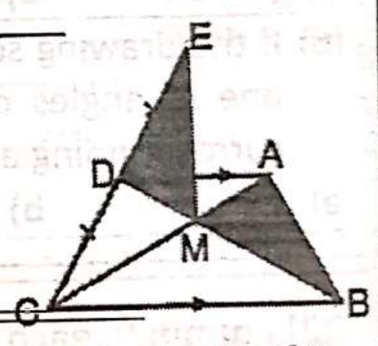
② Area of trapezium if its height 24 cm

B) In the opposite figure:

$\overline{AD} \parallel \overline{BC}$, D midpoint of $\overline{BC}$

Prove that:

Area of Δ ABM = area of Δ DME



[Q5] A) Determine the type of triangle according to its angles if its sides lengths are AB = 8 cm, AC = 6 cm, BC = 7 cm

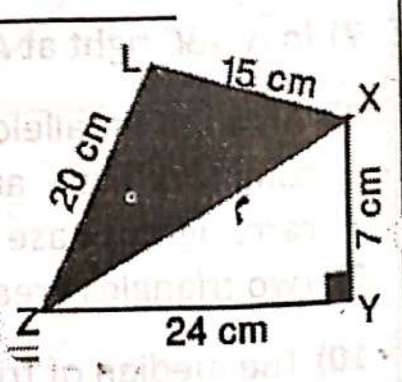
B) In the opposite figure:

M (∠ XYZ) = 90°, $\overline{LM} \perp \overline{XZ}$, XL = 15 cm

ZL = 20 cm, XY = 7 cm, YZ = 24 cm

① Prove that: m (∠ XLZ) = 90°

② Find length of $\overline{LM}$, $\overline{XM}$



End of the questions

GEOMETRY – MODEL No 7

[Q1] *Choose the correct answer:*

(1) The diagonal of square whose area 50 cm^2 is .... Cm
a) 10 b) 20 c) 30 d) 40

(2) If the ratio between two similar triangles 1 : 3 and length of sides of greater triangle is 12 cm, then the length of corresponding side in smaller triangle equals .... cm
a) 4 b) 6 c) 12 d) 24

(3) In Δ ABC, $(AB)^2 - (BC)^2 > (AC)^2$, then $\angle$ B ....
a) Acute b) Right c) Obtuse d) Straight

(4) Length of two parallel bases in trapezium 10 cm , 6 cm, its height 5 cm, then its area = ... cm^2
a) 10 b) 30 c) 40 d) 80

(5) If area of rhombus 48 cm^2, length of one of its diagonals 12 cm, then length of other diagonal is .... Cm
a) 4 b) 8 c) 10 d) 16

(6) In the opposite figure:
BX = XC
Area of Δ AXC = ... area of ABCD
a) $\frac{1}{2}$ b) $\frac{1}{4}$ c) $\frac{1}{8}$ d) 2

[Q2] Complete each of the following:

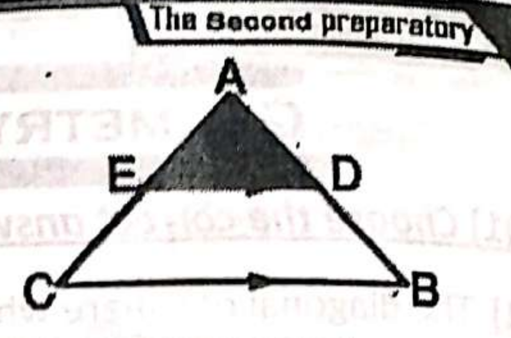
6) Length of projection of line segment on straight line parallel to it .... Length of line segment
7) Two similar polygons two third are ....
8) Two triangles on same base and its vertices on straight line parallel to base are ....
9) Projection of point (5 , 3) on y axis is point ....
10) Two diagonals of an isosceles trapezium are ....

[Q3] A) In the opposite figure:

$\overline{DE} // \overline{BC}$, DE = 6 cm, AD : AB = 1 : 3

① Prove that: Δ ADE ≃ Δ ABC

② Find length of $\overline{BC}$

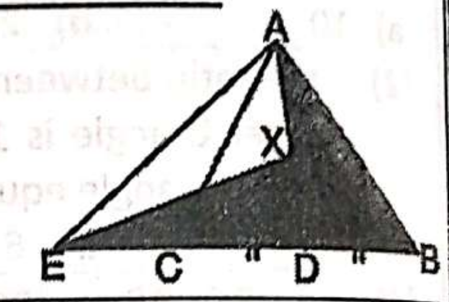


B) In the opposite figure:

Area of Δ ADB = area of Δ XDE

And DB = DC,

Prove that: XC // AE

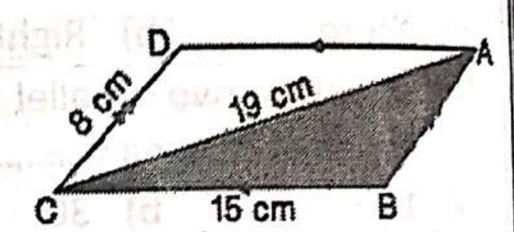


[Q4] A) In the opposite figure:

ABCD is Parallelogram,

BC = 15 cm, DC = 8 cm, AC = 19 cm

Prove that: ∠ ABC is obtuse angle

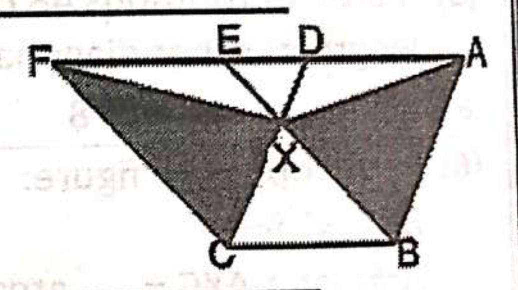


B) In the opposite figure:

ABCD is Parallelogram

Prove that:

Area of Δ AXB = area of Δ XCF



[Q5] A) Find the area of rhombus whose perimeter 60 cm and measure of one of its angles is 60°

B) In the opposite figure:

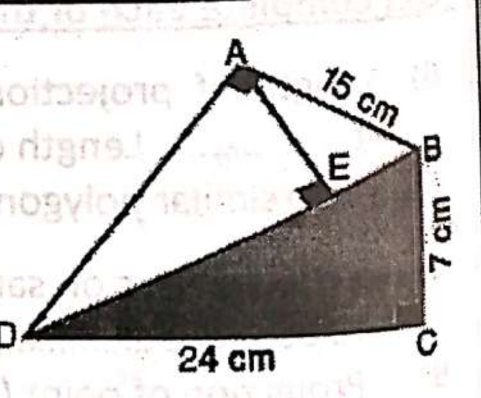
ABCD is quadrilateral, $\overline{AE} \perp \overline{BD}$

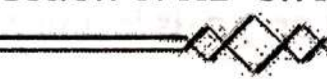
m (∠ BCD) = m (∠BAD) = 90°, **Find:**

① Length of $\overline{AD}$, $\overline{BD}$

② Length of projection of $\overline{AB}$ on $\overline{BD}$

③ Length of projection of $\overline{AD}$ on $\overline{AE}$





End of the questions

GEOMETRY – MODEL No 8

[Q1] Choose the correct answer:

(1) Perimeter of rhombus of diagonals 12 cm , 16 cm is ....cm

a) 10 b) 40 c) 96 d) 192

(2) Length of projection of line segment on straight line parallel to it .... length of original line segment.

a) > b) = c) < d) ≤

(3) Area of rectangle whose sides 8 cm , 4 cm = ...cm^2

a) 16 b) 24 c) 32 d) 64

(4) Sum of interior angles of quadrilateral = ...°

a) 180 b) 360 c) 540 d) 720

(5) Measure of exterior angle of an equilateral triangle = ...°

a) 60 b) 120 c) 180 d) 360

(6) Area of square whose perimeter 12 cm is ....cm^2

a) 72 b) 144 c) 3 d) 9

[Q2] Complete each of the following:

6) The triangles with equal bases and lay on same straight line and have common vertex are ....

7) In Δ ABC, AB = 8 cm, BC = 5 cm, AC = 4 cm, then Δ ABC is ....

8) If the length of two adjacent sides in Parallelogram are 5 cm , 9 cm, and its smaller height is 7 cm, then its area ....cm^2

9) Two triangles are similar if their corresponding sides are.........

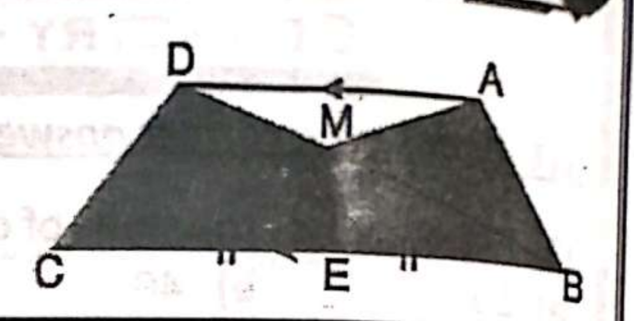
10) The area of a square formed on one of the right sides of a right–angled triangle is equal to the area of the rectangle whose dimensions project of this side on hypotenuse and the length of ....

[Q3] **A) In the opposite figure:**

$\overline{AD} // \overline{BC}$, E is midpoint of $\overline{BC}$

Prove that:

Area of ABEM = area of DCEM

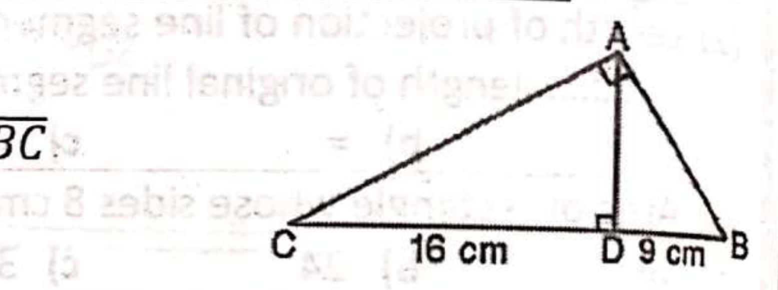


B) In the opposite figure:

Δ ABC right at A, $\overline{AD} \perp \overline{BC}$

BD = 9 cm , CD = 16 cm

Find length of $\overline{AB}$

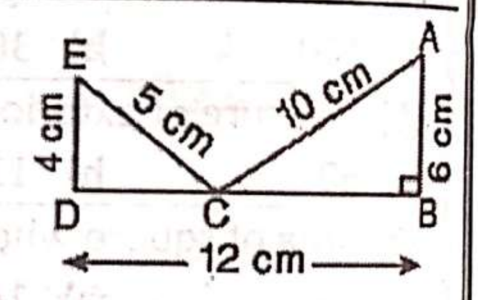


[Q4] **A) In the opposite figure:**

m ($\angle$ B) = 90°, AB = 6 cm, AC = 10 cm

ED = 4 cm, EC = 5 cm, BC = 12 cm

Prove that: m ($\angle$ D) = 90°



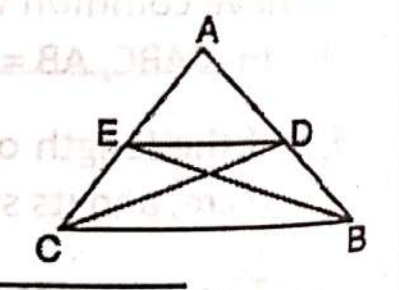
B) Two similar triangles, perimeter of the first 54 cm, lengths of sides of other triangle 5 , 6 , 7 cm, find the sides lengths of first triangle

[Q5] **A) In the opposite figure:**

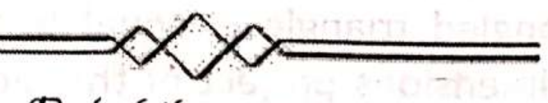
Area of Δ ABE = area of Δ ACD

Prove that:

$\overline{DE} // \overline{BC}$



B) Find the middle base of a trapezium whose area 110 cm^2 and its height 10 cm.



End of the questions

GEOMETRY – MODEL No 9

[Q1] Choose the correct answer:

(1) Area of square whose side 12 cm is ....cm^2

a) 36 b) 48 c) 72 d) 144

(2) In Δ ABC, if $\overline{AD} \perp \overline{BC}$, then projection of point A on $\overleftrightarrow{BC}$ is ....

a) { D } b) $\overline{BD}$ c) $\overline{CD}$ d) $\overline{BC}$

(3) Measure of exterior angle o equilateral triangle is ....°

a) 30 b) 60 c) 120 d) 360

(4) The triangle of sides 5 cm , 8 cm , 12 cm is ....triangle

a) Right b) Acute c) Obtuse d) Isosceles

(5) In Δ ABC: $(AB)^2 = (BC)^2 + (AC)^2 + 5$, then m (∠C) ......90°

a) > b) = c) < d) ≤

(6) The area of rhombus 100 cm^2, its diagonal 10 cm, the other diagonal is .... cm

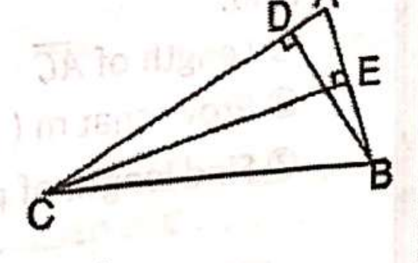
a) 2 b) 5 c) 10 d) 20

[Q2] Complete each of the following:

6) If the ratio between two similar triangles 2 : 3 and measure of one angle smaller triangle is 20°, then the measure of corresponding angle in greater triangle equals ....°

7) Area of Parallelogram equals .... area of triangle with common base and lies between two parallel lines

8) In the opposite figure:
AB = 5 cm , AC = 10 cm
EC = 8 cm, then BD = ... cm



9) Sum of measures of two complementary angles is ....

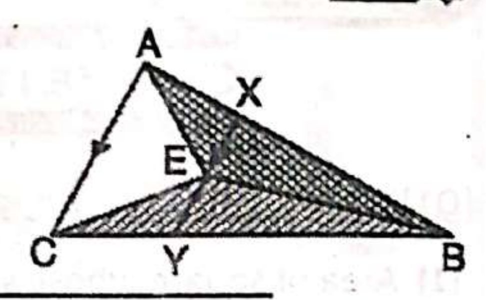
10) Two triangles are similar if their corresponding sides are ....

[Q3] A) In the opposite figure:

$\overline{AC} // \overline{XY}$, F midpoint of $\overline{XY}$

Prove that:

Area of Δ ABF = area of Δ CBF



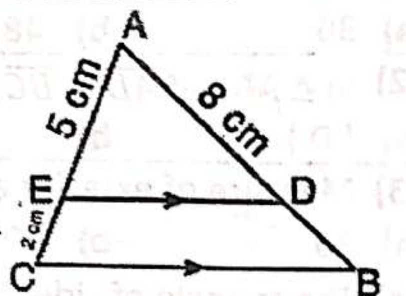
B) In the opposite figure:

DE // BC , AE = 5 cm

EC = 2 cm, AD = 8 cm

① Prove that: Δ ABC ≃ ADE

② Find length of $\overline{BD}$



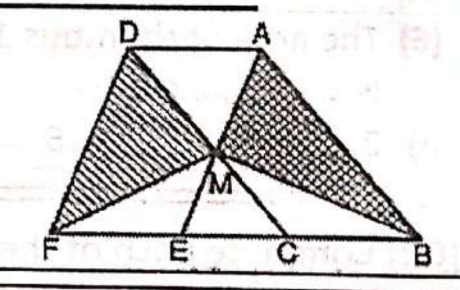
[Q4] A) Area of trapezium 180 cm^2, its height 12 cm, ratio between its two parallel bases 3 : 2, find length of each one

B) In the opposite figure:

ABCD, AEFD are two Parallelograms

Prove that:

Area of Δ ABM = area of Δ DFM



[Q5] In the opposite figure:

ABCD is quadrilateral, m (∠ B) = 90°

$\overline{DE} \perp \overline{AC}$, AB = 7 cm, BC = 24 cm

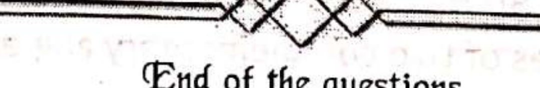
CD = 15 cm, DA = 20 cm

Find:

① Length of $\overline{AC}$

② Prove that m (∠ ADC) = 90°

③ Find length of projection of $\overline{DC}$ on $\overleftrightarrow{AC}$



End of the questions

GEOMETRY – MODEL NO 10

[Q1] Complete each of the following:

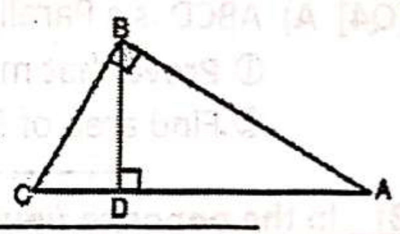
6) The area of rhombus 48 cm^2, its diagonal 12 cm, the other diagonal is .... cm

7) In Δ ABC, AB = 5 cm, BC = 7 cm, CA = 11 cm, then m (∠B) = ...

8) Two similar triangles, sides of first one 4 , 6 , 8 cm, perimeter of the other 72 cm, then the sides of the other ......, ..., ... cm

9) The median of triangle divide it into two triangles ....

10) In the opposite figure:
Δ ABC, m (∠ABC) =90°, $\overline{BD} \perp \overline{AC}$
① Then projection of $\overline{AB}$ on $\overline{AC}$ is ....
② $(BC)^2$ = ... × ....



[Q2] *Choose the correct answer:*

(1) Area of triangle 24 cm^2, its height 8 cm, then its base ....cm
a) 2 b) 3 c) 6 d) 16

(2) ABCD is a Parallelogram, E ∈ D, area of Δ AEB = 20 cm^2, then area of Parallelogram ABCD = ...cm^2
a) 10 b) 20 c) 30 d) 40

(3) A trapezium length of its parallel bases 5 cm , 7 cm, its area 42 cm, then its height = ... cm
a) 5 b) 6 c) 7 d) 12

(4) In Δ ABC, AB = 7 cm , BC = 5 cm , AC = 4 cm, then ∠ C ....
a) Acute b) Obtuse c) Right d) Straight

(5) If length of rectangle 12 cm , its diagonal 13 cm, the its area .....
a) 144 cm^2 b) 169 cm^2 c) 156 cm^2 d) 60 cm^2

[Q3] A) In the opposite figure:

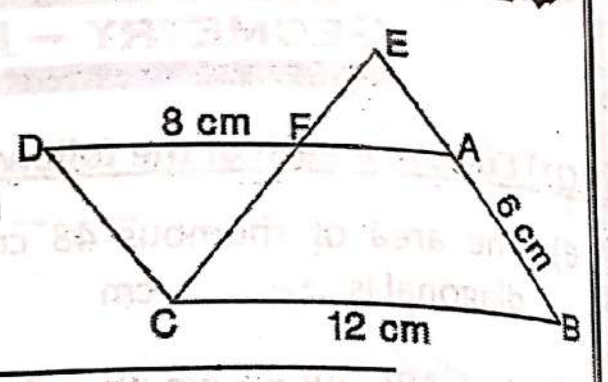
ABCD is Parallelogram, $E \in \overrightarrow{BA}$

$\overline{CE} \cap \overline{AD} = \{ F \}$, BC = 12 cm,

AB = 6 cm, FD = 8 cm, FC = 7 cm

① Prove that: Δ AEF $\simeq \Delta$ DCF

② Find length of $\overline{EB}$, $\overline{EF}$

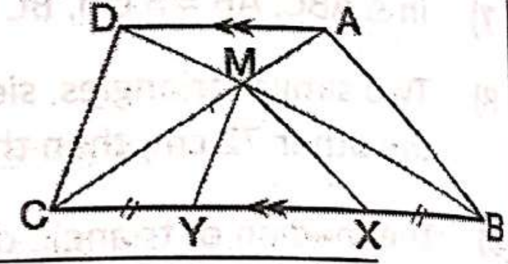


B) In the opposite figure:

$\overline{AD} // \overline{BC}$, $\overline{AC} \cap \overline{BD} = \{ M \}$,

X,Y $\in \overline{BC}$, BX = CY, prove that:

Area of ABXM = area of DCYM



[Q4] A) ABCD is a Parallelogram, AB = 8 cm, AC = 20 cm, BD = 12 cm,

① **Prove that m ($\angle$ ABD) = 90°**

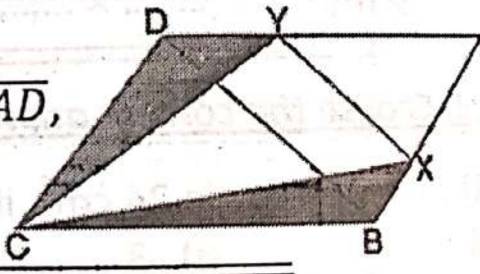
② Find area of Parallelogram ABCD

B) In the opposite figure:

ABCD is Parallelogram, $X \in \overline{AB}$, $Y \in \overline{AD}$,

Area of Δ BCX = area of Δ CYD

Prove that: $\overline{XY} // \overline{BD}$



[Q5] In the opposite figure:

ABCD is quadrilateral,

m ($\angle$ BCD) = m($\angle$BAD) = 90°

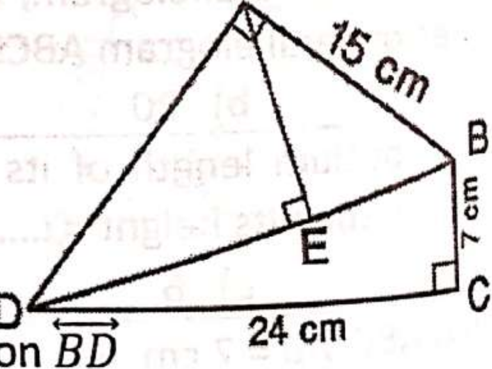
$\overline{AE} \perp \overline{BD}$, BC = 7 cm, CD = 24 cm

AB = 15 cm, Find:

① Length of $\overline{BD}$, $\overline{AD}$

② Find length of projection of $\overline{AB}$ on $\overleftrightarrow{BD}$

③ Find length of projection of $\overline{AD}$ on $\overleftrightarrow{AE}$





End of the questions

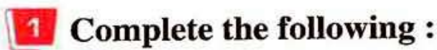
Model Examinations of the School Book



on Geometry

Model 1

Answer the following questions :



1 Complete the following :

1. **In the opposite figure :**
   AB × .... = BC × AD
2. In Δ ABC , if $(AC)^2 + (BC)^2 = (AB)^2$, then m (∠ ....) = 90°
3. If the point A ∈ the line L , then the projection of the point A on the line L is ....
4. The area of the circle of diameter 14 cm. = ... cm.² $(\pi = \frac{22}{7})$
5. A trapezium whose bases lengths are 8 cm. , 10 cm. and its height is 5 cm. , then its area equals .... cm.²

2 Choose the correct answer :

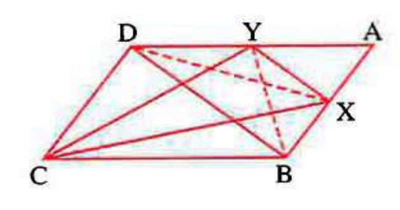
1. In Δ ABC , if $(AB)^2 > (BC)^2 + (AC)^2$, then ∠ C is ....
   (a) acute. (b) right. (c) obtuse. (d) straight.
2. A rhombus whose diagonals lengths are 6 cm. , 10 cm. has area .... cm.²
   (a) 60 (b) 30 (c) 15 (d) 10
3. The ratio between the lengths of two corresponding sides of two similar polygons is 3 : 5 , then the ratio between their perimeters is ....
   (a) 2 : 5 (b) 5 : 3 (c) 3 : 5 (d) 1 : 2
4. If the area of a trapezium is 100 cm.² and its height is 5 cm. , then the length of its middle base = ... cm.
   (a) 20 (b) 30 (c) 40 (d) 50
5. ABCD is a parallelogram in which m (∠ A) = 70° , then m (∠ B) = ...°
   (a) 70 (b) 110 (c) 180 (d) 360
6. Measure of each angle of the regular pentagon is = ...°
   (a) 90 (b) 108 (c) 120 (d) 540

3 [a] The sides lengths of one of two similar triangles are 3 cm. , 4 cm. , 5 cm. and the perimeter of the other triangle is 36 cm. find the side lengths of the other triangle.

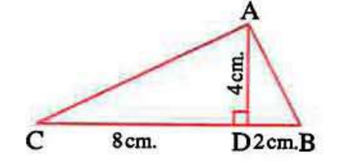
[b] **In the opposite figure :**

ABCD is a parallelogram , X ∈ $\overline{AB}$, Y ∈ $\overline{AD}$ such that : The area of Δ CBX = the area of Δ CYD

Prove that : $\overline{XY}$ // $\overline{BD}$



4 [a] **In the opposite figure :**



ABC is a triangle in which : BD = 2 cm.

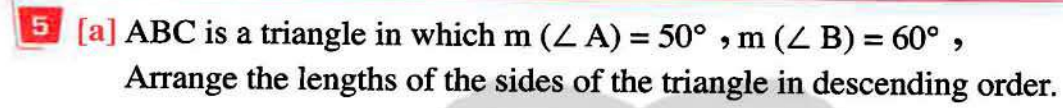
, CD = 8 cm. , AD = 4 cm. , $\overline{AD} \perp \overline{BC}$

Prove that : m (∠ BAC) = 90°

[b] ABCD is a parallelogram in which : AB = 18 cm. and BC = 12 cm.

We draw $\overline{DE} \perp \overline{BC}$, $\overline{DO} \perp \overline{AB}$, DE = 15 cm.

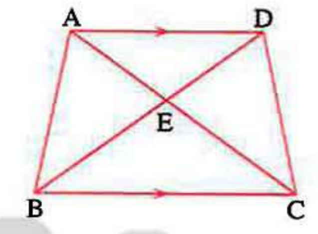
Calculate the area of parallelogram ABCD and find the length of $\overline{DO}$



5 [a] ABC is a triangle in which m (∠ A) = 50° , m (∠ B) = 60° ,

Arrange the lengths of the sides of the triangle in descending order.

[b] **In the opposite figure :**



ABCD is a quadrilateral in which

$\overline{AD}$ // $\overline{BC}$, $\overline{AC} \cap \overline{BD}$ = {E}

Prove that : the area of Δ ABE = the area of Δ DCE

Model 2

Answer the following questions :

1 **Complete the following :**

1. The two polygons are similar if their corresponding sides are .... and their corresponding angles are ....
2. The area of a rhombus is 24 cm.^{2} , the length of one of its diagonals is 8 cm. , then the length of the other diagonal is ....
3. In Δ ABC , if $(AB)^2 = (AC)^2 - (BC)^2$, then Δ ABC is right-angled at ....
4. A triangle whose side lengths are 6 cm. , 8 cm. and 11 cm. , then its type according to its angles is ....
5. Area of triangle is equal to half of area of a parallelogram if they have a common ....

2 **Choose the correct answer :**

1. A trapezium whose bases lengths are 6 cm. , 8 cm. , then the length of its middle base equals .... cm.

   (a) 48 (b) 24 (c) 14 (d) 7

2. If two polygons are similar and the ratio between the lengths of two corresponding sides is 1 : 3 and the perimeter of the smaller polygon is 15 cm. , then the perimeter of the greater polygon is .... cm.

   (a) 30 (b) 45 (c) 60 (d) 75

3 If the area of the triangle is 24 cm.^{2} and its height = 8 cm. , then the length of the corresponding base .... cm.

(a) 16 (b) 6 (c) 3 (d) 12

4 ABC is a right-angled triangle at B , $\overline{BD} \perp \overline{AC}$, then the projection of $\overline{BD}$ on $\overleftrightarrow{AC}$ is point ....

(a) A (b) B (c) C (d) D

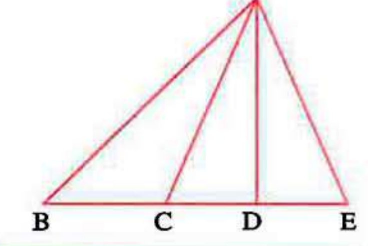
5 A square of perimeter 20 cm. , then its area equals .... cm^2

(a) 20 (b) 25 (c) 50 (d) 100

6 The number of the triangles in the opposite figure = ...

(a) 3 (b) 4

(c) 5 (d) 6



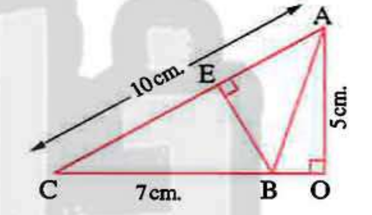
3 **In the opposite figure :**

$\overline{AO} \perp \overleftrightarrow{CB}$, $\overline{BE} \perp \overline{AC}$

, AC = 10 cm. , BC = 7 cm. and AO = 5 cm.

Find : 1 The length of $\overline{BE}$

2 The area of Δ ABC



4 [a] ABCD is a parallelogram in which : AB = 8 cm. , AC = 20 cm. and BD = 12 cm.

Prove that : m ($\angle$ ABD) = 90° , then find the area of this parallelogram.

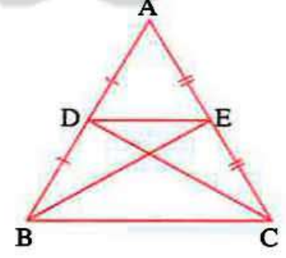
[b] **In the opposite figure :**

ABC is a triangle in which D is the midpoint of $\overline{AB}$, E is the midpoint of $\overline{AC}$

Prove that :

First : the area of the triangle DBC = the area of triangle EBC

Second : $\overline{DE}$ // $\overline{BC}$

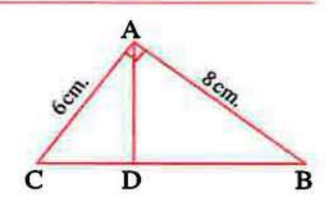


5 [a] **In the opposite figure :**

Δ DBA is a similar to Δ ABC , m ($\angle$ BAC) = 90°

Prove that : $\overline{AD} \perp \overline{BC}$ and if AB = 8 cm. , AC = 6 cm.

Find the length of : $\overline{BD}$



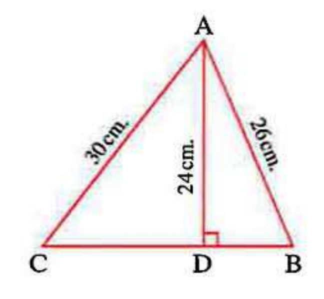
[b] In the opposite figure :

ABC is a triangle , $\overline{AD} \perp \overline{BC}$

If AD = 24 cm. , AB = 26 cm.

and AC = 30 cm.

Find : BC , then calculate area of Δ ABC



Model for the merge students

Answer the following questions :

1 Choose the correct answer from those given :

1. The area of parallelogram whose length of its base 6 cm. and its corresponding height of this base 4 cm. equals .... cm^2.
   (a) 12 (b) 20 (c) 24 (d) 48
2. The triangle whose lengths of its sides 6 cm. , 8 cm. , 10 cm. is ....
   (a) acute-angled triangle. (b) right-angled triangle.
   (c) obtuse-angled triangle. (d) otherwise.
3. The rhombus whose lengths of its diagonals 6 cm. and 10 cm. , then its area = ... cm^2.
   (a) 60 (b) 30 (c) 15 (d) 10
4. Trapezium of length of its middle base 8 cm. and surface area 56 cm^2. , then its height = ... cm.
   (a) 32 (b) 24 (c) 448 (d) 7
5. All .... are similar.
   (a) squares (b) triangles (c) rectangles (d) parallelograms

2 Complete each of the following :

1. The projection of point on a straight line is ....
2. If the triangle ABC is obtuse-angled triangle at B , then $(AC)^2$ .... $(AB)^2 + (BC)^2$
3. The square whose length of its diagonal 8 cm. , then its area = ... cm^2.
4. The two triangles have same base and the vertices opposite to this base on straight line parallel to the base ....
5. Area of triangle = $\frac{1}{2}$ × .... × corresponding height.

3 **Join from the column (A) to the suitable one from the column (B) :**

Column (A)	Column (B)
1 **In the opposite figure :** AC = ... cm. (Figure: triangle ABD, AB = 4 cm., AD = 3 cm., BD = 5 cm., AC ⊥ BD)	• BEC
2 **In the opposite figure :** Area of Δ AED = area of Δ .... (Figure: CD // BA, diagonals meet at E)	• 2.4
3 **In the opposite figure :** Area of Δ ABD = area of Δ .... (Figure: triangle ABC, CD = DB)	• Congruent
4 If the ratio of enlargement between two similar triangles = 1, then the two triangles are	• 3.6
5 **In the opposite figure :** The length of the projection of $\overline{AB}$ on $\overline{BC}$ = ... cm. (Figure: AC = 8 cm., AB = 6 cm., AD ⊥ CB)	• ACD

4 **In the opposite figure :**

Area of the figure ABYX = Area of the figure DCYX

Complete the proof :

To prove that : $\overline{AD}$ // $\overline{BC}$

Given : ....

R.T.P. : ....

Proof : $\overline{XY}$ is median in Δ XBC

$\therefore$ Area of Δ …………… = area Δ …………… (1)

$\because$ area of the figure ABYX = area of the figure DCYX (2)

By subtracting (1) from (2) :

$\therefore$ Area of Δ …………… = area of Δ ……………

By adding area of Δ ADX to both sides

$\therefore$ Area of Δ …………… = area of Δ ……………

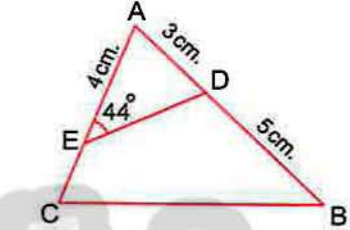
$\because$ $\overline{AD} \,//\, \overline{BC}$

5 **In the opposite figure :**

$\Delta ABC \sim \Delta AED$

, m ($\angle$ AED) = 44° , AD = 3 cm. , EA = 4 cm.

, DB = 5 cm. , BC = 8 cm.



Complete to find the length of each of : $\overline{ED}$ and $\overline{EC}$

Solution :

$\because \Delta ABC \sim \Delta AED$

$\therefore \frac{AB}{\cdots\cdots} = \frac{\cdots\cdots}{ED} = \frac{CA}{DA}$

$\therefore \frac{8}{\cdots\cdots} = \frac{\cdots\cdots}{ED} = \frac{CA}{3}$

$\therefore$ ED = …………… cm. , AC = …………… cm. , EC = …………… cm.

Schools Examinations of the previous years on Geometry



1 Cairo Governorate

Heliopolis Directorate
Kalousdian-Nubarian Armenian School



Answer the following questions :

1 Choose the correct answer :

1 The area of triangle is equal to .... the area of parallelogram which has a common base and its vertex lies on the straight line parallel to this base.

(a) equal to (b) half (c) twice (d) quarter

2 If $\overline{AB} \parallel \overleftrightarrow{XY}$, then the length of the projection of $\overline{AB}$ on $\overleftrightarrow{XY}$ .... the length of $\overline{AB}$

(a) $<$ (b) $>$ (c) $=$ (d) $\leq$

3 In Δ ABC : If $(AC)^2 > (AB)^2 + (BC)^2$, then the angle B is ....

(a) acute (b) right (c) obtuse (d) straight

4 The height of the triangle whose area is 24 cm^2. and its corresponding base length is 8 cm. equals .... cm.

(a) 3 (b) 4 (c) 6 (d) 8

5 If the ratio of an enlargement between two triangles equals 1 , then the two triangles are ....

(a) congruent (b) enlargement (c) coincide (d) reduction

6 A rhombus its two diagonals of lengths 8 cm. and 6 cm. , its area equals .... cm^2.

(a) 14 (b) 20 (c) 24 (d) 48

2 Complete each of the following :

1 The median of a triangle divides its surface into two triangles ....

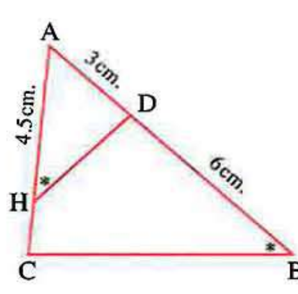
2 If the point A $\in$ straight line L , then the projection of the point A on this straight line is ....

3 If two triangles are similar , then their lengths of corresponding sides are ....

4 If the area of a trapezium is 75 cm^2. , and the length of its middle base is 15 cm. , then its height = ... cm.

5 If Δ ABC ~ Δ XYZ , AB = 5 cm. , XY = 10 cm. and YZ = 8 cm. , then BC = ... cm.

3 [a] **In the opposite figure :**



m (∠ AHD) = m (∠ B)

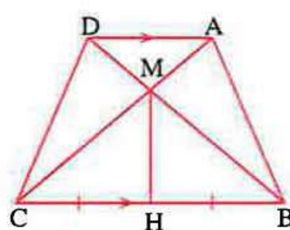
, AD = 3 cm. , AH = 4.5 cm. , and BD = 6 cm.

1 **Prove that :** Δ ADH ~ Δ ACB

2 **Find :** the length of $\overline{HC}$



[b] **In the opposite figure :**



$\overline{AD}$ // $\overline{BC}$, H is the midpoint of $\overline{BC}$

Prove that :

1 The area of Δ AMB = the area of Δ DMC

2 The area of the figure ABHM = the area of the figure DCHM

4 [a] **In the opposite figure :**

m (∠ BAC) = 90° , $\overline{AD}$ ⊥ $\overline{BC}$

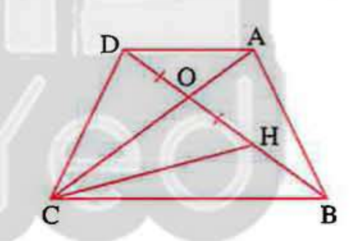
, BD = 9 cm. , DC = 16 cm.

1 **Find :** the length of $\overline{AB}$

2 **Find :** the length of the projection of $\overline{AC}$ on $\overleftrightarrow{AD}$

[b] A trapezium , its area is 6 cm^2. and the length of one of its two parallel bases equals 5 cm. and its height is 7 cm. **Find the length of the other base.**

5 [a] **In the opposite figure :**



ABCD is a quadrilateral its diagonals intersect at the point O

, H ∈ $\overline{BO}$ where OH = OD

, the area of Δ ABO = the area of Δ HOC

Prove that : $\overline{AD}$ // $\overline{BC}$

[b] Identify the type of Δ ABC according to the measures of its angles where AB = 5 cm. , BC = 6 cm. , AC = 7 cm.

2 Cairo Governorate

El-Nozha Directorate of Education
Modern Language Schools



Answer the following questions :

1 **Choose the correct answer :**

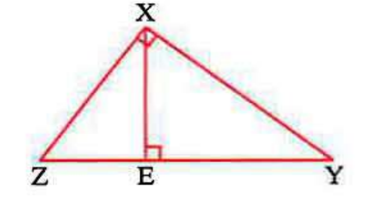
1 The area of the trapezium whose middle base is of length 7 cm. and its height is 6 cm. equals ....

(a) 21 cm^2.   (b) 40 cm^2.   (c) 42 cm^2.   (d) 13 cm^2.

2 In Δ ABC : if m ($\angle$ C) = 90° , AB = 20 cm. and BC = 16 cm.
, then AC = ... cm.

(a) 9 (b) 12 (c) $4\sqrt{41}$ (d) 25

3 **In the opposite figure :**



EY × EZ = ...

(a) $(XE)^2$ (b) $(XZ)^2$

(c) $(YZ)^2$ (d) $(XY)^2$

4 The triangle whose sides lengths are 5 cm. , 8 cm. and 7 cm. is ....-angled triangle.

(a) right (b) acute (c) obtuse (d) straight

5 If the triangle base length is 6 cm. and its area is 24 cm^2
, then its corresponding height is ....

(a) 18 cm. (b) 8 cm. (c) 4 cm. (d) 10 cm.

6 If $\overline{AB}$ // $\overline{XY}$, then the length of the projection of $\overline{AB}$ on $\overleftrightarrow{XY}$ .... the length of $\overline{AB}$

(a) < (b) > (c) = (d) ≥

2 Complete :

1 The two polygons are similar if their corresponding side lengths are .... and their corresponding angles are ....

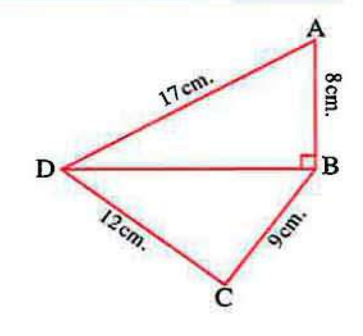
2 If Δ ABC ~ Δ XYZ , m ($\angle$ A) + m ($\angle$ B) = 60° , then m ($\angle$ Z) = ...

3 If Δ ABC is an obtuse-angled triangle at B , then $(AC)^2$ .... $(AB)^2 + (BC)^2$

4 If the length of the diagonal of a square is 10 cm. , then its area = ... cm^2

5 If the ratio between the length of two corresponding sides of two similar polygons is 2 : 5 and the perimeter of the smaller one is 12 cm. , then the perimeter of the other one is ....

3 [a] In the opposite figure :



ABCD is a quadrilateral in which :

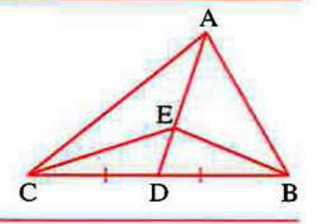
AB = 8 cm. , BC = 9 cm.

, CD = 12 cm. , AD = 17 cm.

and $\overline{DB} \perp \overline{AB}$

1 **Find :** the length of $\overline{BD}$

2 **Prove that :** m ($\angle$ C) = 90°

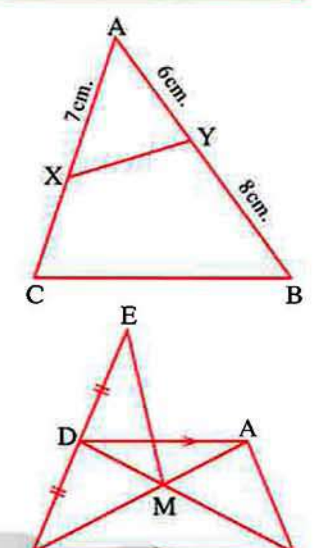


[b] In the opposite figure :

Δ ABC with a median $\overline{AD}$, E $\in \overline{AD}$

Prove that : the area of Δ ABE = the area of Δ ACE

4 **[a] In the opposite figure :**

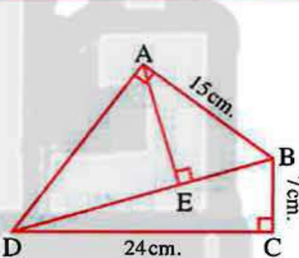


Δ AXY ~ Δ ABC , AX = 7 cm.

, AY = 6 cm. , YB = 8 cm.

Find : the length of $\overline{XC}$

[b] In the opposite figure :



$\overline{AD} \,//\, \overline{BC}$, $\overline{AC} \cap \overline{BD} = \{M\}$

, D is the midpoint of $\overline{EC}$

Prove that : the area of Δ MDE = the area of Δ AMB

5 **In the opposite figure :**



ABCD is a quadrilateral , m ($\angle$ BCD) = m ($\angle$ BAD) = 90°

, $\overline{AE} \perp \overleftrightarrow{BE}$

1 **Find :** the length of $\overline{BD}$ and $\overline{AD}$

2 **Find :** the length of the projection of $\overline{AB}$ on $\overleftrightarrow{BD}$



3 Cairo Governorate

El Zawia Educational Zone
Geel Almostakbal E.L.S.

Answer the following questions :

1 **Complete each of the following :**

1 The length diagonal of a square whose area 50 cm^2 equals ....

2 The lengths of two adjacent sides in a parallelogram are 9 cm. , 6 cm. and the smallest height is 4 cm. , then the length of the other height is ....

3 The two polygons are similar to a third are ....

4 The median of a triangle divide it into two triangle .... in area.

5 The area of trapezium whose parallel bases are 6 cm. , 10 cm. and height 5 cm. equals ....

2 Choose the correct answer :

1 If the area of a rhombus is 24 cm^2. and the length of one of its diagonal is 6 cm. , then the length of the other diagonal is ....

(a) 4 cm. (b) 8 cm. (c) 10 cm. (d) 12 cm.

2 The length of the projection of a given line segment .... the length of the original line segment.

(a) ≥ (b) > (c) ≤ (d) =

3 ABC is an obtuse angle triangle at A in which AB = 5 cm. , BC = 8 cm. , then AC = ... cm.

(a) 5 (b) 7 (c) 8 (d) 13

4 Δ ABC in which $(AB)^2 = (AC)^2 + (BC)^2$, m (∠ B) = 40° , then m (∠ A) = ...

(a) 40° (b) 50° (c) 90° (d) 130°

5 The diagonals of an isosceles trapezium are ....

(a) congruent (b) perpendicular (c) bisect each other (d) parallel

6 **In the opposite figure :**

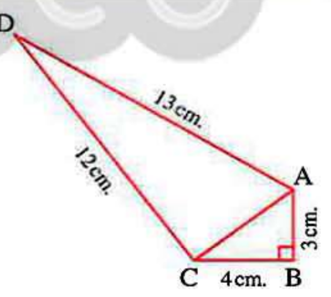
If Δ ADE ~ Δ ABC

, then the length of

$\overline{BC}$ in cm. equals .... cm.

(a) 3 (b) 4 (c) 6 (d) 8

3 [a] In the opposite figure :



AB = 3 cm. , BC = 4 cm.

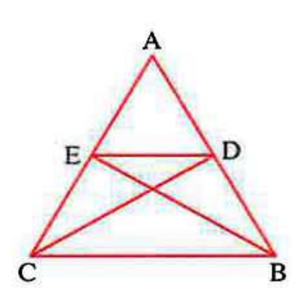
, AD = 13 cm. , CD = 12 cm.

, m (∠ B) = 90°

Prove that :

m (∠ ACD) = 90°

[b] In the opposite figure :

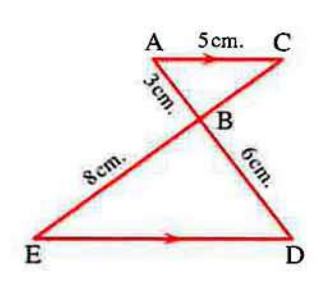


If the area of Δ ADC = the area of Δ AEB

Prove that :

$\overline{DE}$ // $\overline{BC}$

4 **[a] In the opposite figure :**



$\overline{AC} \parallel \overline{DE}$

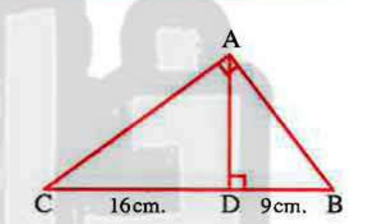
, $\overline{AD} \cap \overline{CE} = \{B\}$

, AB = 3 cm. , AC = 5 cm. , BD = 6 cm. , EB = 8 cm.

1 **Prove that :** $\Delta ABC \sim \Delta DBE$

2 **Find the length of :** $\overline{BC}$, $\overline{DE}$

[b] In the opposite figure :



$\overline{AD} \parallel \overline{BC}$, $\overline{AC} \cap \overline{BD} = \{M\}$

, $X \in \overline{BC}$, $Y \in \overline{BC}$ such that BX = CY

Prove that :



The area of the shape ABXM = the area of the shape DCYM

5 **In the opposite figure :**

ABC is a right-angled triangle at A

, $\overline{AD} \perp \overline{BC}$, BD = 9 cm. , CD = 16 cm. **Find :**

1 The length of $\overline{AB}$

2 The length of the projection of $\overline{AC}$ on $\overleftrightarrow{AD}$

3 The area of ΔABC





Answer the following questions :

1 **Complete each of the following :**

1 A square its diagonal length = 12 cm. its area = ... cm^2.

2 If $\overline{AB} \perp \overleftrightarrow{CD}$, then the length of projection of $\overline{AB}$ on $\overleftrightarrow{CD}$ = ...

3 The two polygons are similar if their corresponding angles are .... and their corresponding sides are ....

4 Area of a triangle is equal to half of area of parallelogram if they have a common base and ....

5 ABC is a triangle , AB = 8 cm. , BC = 9 cm. and AC = 6 cm. , then its type according to its angles is ....

2 Choose the correct answer :

1 Area of a parallelogram = 24 cm^2 and its base length is 6 cm. , then its corresponding height = ... cm.

(a) 8 (b) 4 (c) 48 (d) 12

2 The median of a triangle divides its surface into two triangles are ....

(a) similar (b) congruent (c) equal in area (d) equal in perimeter

3 In Δ ABC if $(AC)^2 < (AB)^2 + (BC)^2$, then the type of $\angle$ B is ....

(a) obtuse (b) right (c) acute (d) straight

4 The trapezium whose middle base length = 9 cm. and its height = 6 cm. its area = ... cm^2

(a) 27 (b) 54 (c) 15 (d) 108

5 $\overline{AB} \parallel \overleftrightarrow{CD}$, then the length of projection of $\overline{AB}$ on $\overleftrightarrow{CD}$ .... the length of $\overline{AB}$

(a) > (b) < (c) = (d) ≤

6 A rhombus whose diagonal lengths are 12 cm. , 8 cm. its area = ... cm^2

(a) 48 (b) 96 (c) 20 (d) 144

3 [a] In the opposite figure :

$\overline{AB} \parallel \overline{DC}$, $\overline{AD} \cap \overline{BC} = \{M\}$

, AB = 10 cm. , AM = 6 cm.

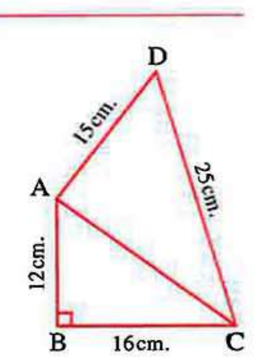
, MD = 12 cm. , MC = 16 cm.

1 **Prove that :** Δ AMB ~ Δ DMC

2 **Find the length of :** $\overline{CD}$

[b] Find height of trapezium its area = 450 cm^2 and the two base lengths are 24 cm. , 12 cm.

4 [a] In the opposite figure :



ABCD is a quadrilateral , m ($\angle$ B) = 90° , AB = 12 cm.

, BC = 16 cm. , CD = 25 cm. and DA = 15 cm.

1 **Find :** AC

2 **Prove that :** m ($\angle$ DAC) = 90°

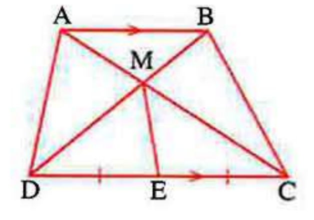
[b] Determine the type of triangle ABC according to its angles If AB = 12 cm. , BC = 5 cm. and AC = 13 cm. , then find its area.

5 **[a] In the opposite figure :**

$\overline{AB} \parallel \overline{DC}$, $\overline{AC} \cap \overline{BD} = \{M\}$

, E is the midpoint of $\overline{CD}$

Prove that : the area of the figure ADEM = the area of the figure BCEM



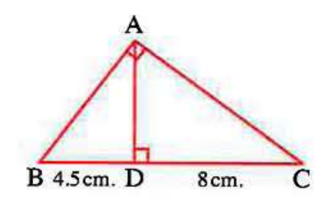
[b] In the opposite figure :

ABC is a triangle , m (∠ BAC) = 90°

, $\overline{AD} \perp \overline{BC}$

, BD = 4.5 cm. , DC = 8 cm.

Find : AD , AB , AC



5 Giza Governorate

Omrania Directorate
El-Sadat Governmental Language School

Answer the following questions :

1 **Choose the correct answer :**

1. In Δ ABC , if $(AB)^2 > (BC)^2 + (AC)^2$, then ∠ C is ....
   (a) acute. (b) right. (c) obtuse. (d) straight.
2. A rhombus whose diagonal lengths are 6 cm. , 10 cm. its area = ... cm^2.
   (a) 60 (b) 30 (c) 15 (d) 10
3. If the length of the middle base of a trapezium is 8 cm. and its surface area is 56 cm^2. , then its height = ... cm.
   (a) 32 (b) 24 (c) 448 (d) 7
4. If the ratio of enlargement between two triangles equals 1 , then the two triangles are ....
   (a) congruent. (b) enlargement. (c) coincide. (d) reduction.
5. Any triangle has at least two .... angles.
   (a) right (b) obtuse (c) acute (d) straight
6. The isosceles triangle has .... axis of symmetry.
   (a) zero (b) one (c) two (d) three

2 **Complete each of the following :**

1. The median of a triangle divides it into two triangles .... in area.
2. Two triangles are similar if their corresponding side lengths are ....

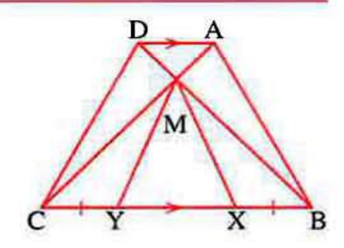
3 ABCD is a rectangle , the projection of $\overline{AB}$ on $\overleftrightarrow{BC}$ is ....

4 Surfaces of two parallelograms with common base and between two parallel straight lines one is carrying this base are ....

5 ABCD is a parallelogram its area = 36 cm^2 , E $\in \overline{AD}$, then the area of Δ EBC = ... cm^2



3 **[a] In the opposite figure :**

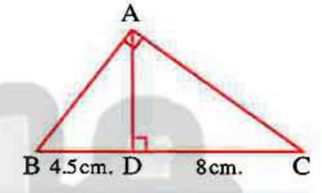


$\overline{AD} \parallel \overline{BC}$, $\overline{AC} \cap \overline{BD} = \{M\}$

, X $\in \overline{BC}$, Y $\in \overline{BC}$ such that BX = CY

Prove that : the area of the shape ABXM
= the area of the shape DCYM

[b] In the opposite figure :

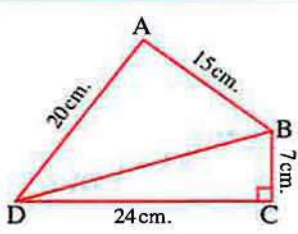


ABC is a triangle in which : m ($\angle$ BAC) = 90° , $\overline{AD} \perp \overline{BC}$

, BD = 4.5 cm. , DC = 8 cm.

Find : the length of each of $\overline{AC}$, $\overline{AB}$, $\overline{AD}$

4 **[a] In the opposite figure :**



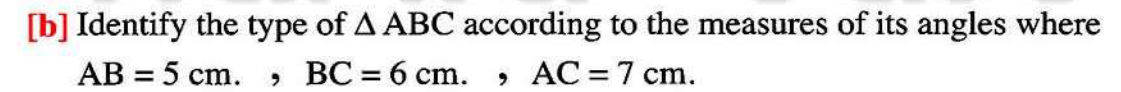
$\overline{AB} \parallel \overline{DC}$, $\overline{AD} \cap \overline{BC} = \{M\}$

, AB = 10 cm. , AM = 6 cm.

, MD = 12 cm. , MC = 16 cm.

1 **Prove that :** Δ AMB ~ Δ DMC

2 **Find :** the length of $\overline{CD}$, $\overline{MB}$



[b] Identify the type of Δ ABC according to the measures of its angles where AB = 5 cm. , BC = 6 cm. , AC = 7 cm.

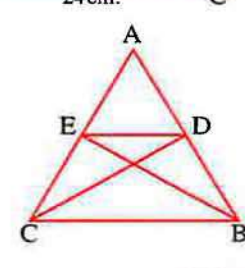
5 **[a] In the opposite figure :**

m ($\angle$ BCD) = 90° , AB = 15 cm.

, BC = 7 cm. , CD = 24 cm. , AD = 20 cm.

Prove that : m ($\angle$ BAD) = 90°

[b] In the opposite figure :



If the area of Δ ADC = the area of Δ AEB

Prove that : $\overline{DE} \parallel \overline{BC}$



Giza Governorate



6th October Directorate
Om Al Moamneen Language School

Answer the following questions :

1 Choose the correct answer :

1. If the area of parallelogram is 40 cm^2 and its base length is 5 cm. , then the corresponding height to this base = ... cm.
   (a) 16 (b) 8 (c) 20 (d) 5
2. If a triangle ABC in which $(AC)^2 - (AB)^2 = (BC)^2$, then $\angle$ B is ....
   (a) acute. (b) right. (c) reflex. (d) obtuse.
3. If the area of square is 72 cm^2 , then its diagonal length = ... cm.
   (a) 6 (b) 8 (c) 36 (d) 12
4. ABC is a right-angled triangle at B , $\overline{BD} \perp \overline{AC}$, D $\in \overline{AC}$, then the projection of $\overline{BD}$ on $\overline{AC}$ is ....
   (a) A (b) B (c) C (d) D
5. ABC is a triangle in which $(AB)^2 = (BC)^2 + (AC)^2$ and m ($\angle$ B) = 40° , then m ($\angle$ A) = ...
   (a) 40° (b) 50° (c) 90° (d) 130°
6. If $\overline{XL}$ is a median in Δ XYZ , then the area of Δ XYZ = ... the area of Δ XYL
   (a) 2 (b) 4 (c) $\frac{1}{2}$ (d) $\frac{1}{4}$

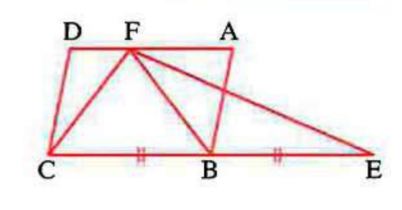
2 Complete each of the following :

1. If the ratio of enlargement between two triangles equals 1 , then the two triangles are ....
2. A trapezium whose base lengths are 8 cm. , 10 cm. , and its height is 5 cm. , then its area equals .... cm^2.
3. ABC is a right-angled triangle at A , $\overline{AD} \perp \overline{BC}$, D $\in \overline{BC}$, DC = 9 cm. , BD = 16 cm. , then the length of $\overline{AC}$ = ... cm.
4. A triangle whose side lengths 6 cm. , 8 cm. , 11 cm. , then its type according to its angles is ....
5. If ABC is a triangle m ($\angle$ A) = 3 x° , m ($\angle$ B) = 5 x° , m ($\angle$ C) = 4 x° , then m ($\angle$ B) = ...

3 [a] In the opposite figure :

ABCD is a parallelogram.
, E $\in \overrightarrow{CB}$, where BC = BE

Prove that : The area of Δ EFC = The area of ▱ ABCD



[b] In the opposite figure :

ABCD is a quadrilateral ,

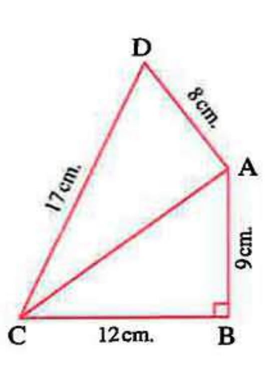
m (∠ B) = 90°

, AB = 9 cm.

, BC = 12 cm. , DA = 8 cm. , CD = 17 cm.

Prove that :

m (∠ DAC) = 90°



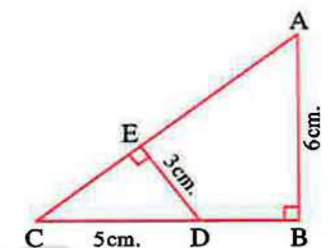
4 **[a] In the opposite figure :**

ABC is a right-angled triangle at B

, $\overline{ED} \perp \overline{AC}$, CD = 5 cm. , AB = 6 cm. , ED = 3 cm.

1 **Prove that :** Δ CED ~ Δ CBA

2 **Find :** The length of $\overline{AC}$



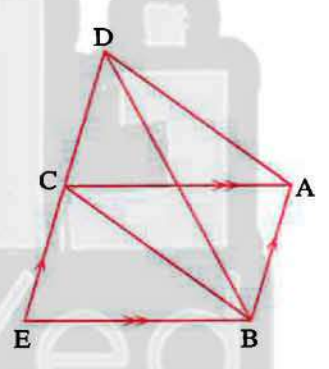
[b] In the opposite figure :

ABEC is a parallelogram.

, D ∈ $\overrightarrow{EC}$

Such that : The area of Δ DBC = the area of Δ EBC

Prove that : $\overline{AD}$ // $\overline{BC}$



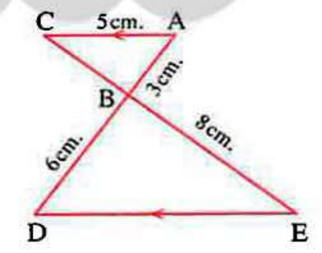
5 **[a] In the opposite figure :**

$\overline{AC}$ // $\overline{ED}$, $\overline{AD} \cap \overline{CE} = \{B\}$, AC = 5 cm.

, AB = 3 cm. , BD = 6 cm. , BE = 8 cm.

1 **Prove that :** Δ ABC ~ Δ DBE

2 **Find :** The perimeter of triangle BED



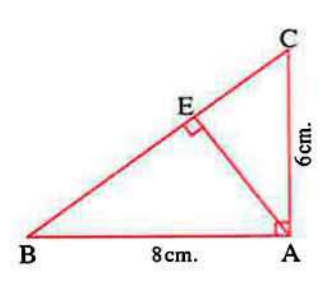
[b] In the opposite figure :

ABC is a triangle in which : $\overline{AE} \perp \overline{BC}$

Find :

1 The length of the projection of $\overline{AB}$ on $\overleftrightarrow{BC}$

2 The length of $\overline{EC}$





7 Alexandria Governorate

West Educational Zone
Inspectorate of Mathematics



Answer the following questions :

1 Complete each of the following :

1. The area of the rhombus whose diagonal lengths are12 cm. , 8 cm. equals .... cm^2.
2. If $\overline{AD} \perp \overline{BC}$, then the length of projection of $\overline{AD}$ on $\overleftrightarrow{BC}$ equals .... cm.
3. ABC is a right-angled triangle at B in which AB = 5 cm. , BC = 12 cm. , then AC = ... cm.
4. In Δ ABC , AB = 8 cm. , BC = 9 cm. and AC = 6 cm. , then the type of this triangle according to its measures of angles is ....
5. The number of axes of symmetry of an isosceles triangle equals ....

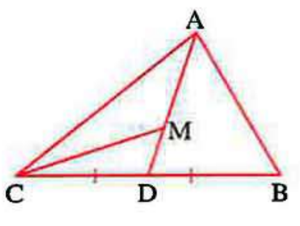
2 Choose the correct answer :

1. The diagonals of an isosceles trapezium are ....
   (a) congruent. (b) perpendicular.
   (c) bisect each other. (d) parallel.
2. If the ratio between two corresponding sides of two similar triangles is 1 : 2 and the measure of an angle of the first triangle equals 60° , then the measure of its corresponding angle in the other triangle equals ....
   (a) 30° (b) 120° (c) 60° (d) 62°
3. The image of the point (2 , 0) is itself by reflection on ....
   (a) x-axis (b) y-aixs
   (c) origin point. (d) x-axis followed by y-axis
4. The perpendicular segment drawn from the right angle of a triangle to the hypotenuse divides it into two .... triangles.
   (a) obtuse-angled (b) acute-angled
   (c) equilateral (d) similar
5. The measure of the complementary angle of an angle whose measure $x°$ equals ....
   (a) 90° (b) $90° - x°$ (c) $x° - 90°$ (d) $90\ x°$
6. ABCD is a parallelogram , E $\in \overline{BC}$, then the area of ▱ ABCD = ... area of Δ EAD
   (a) the same (b) half (c) twice (d) third

3 [a] **In the opposite figure :**

ABC is a triangle , M is the point of concurrence

Prove that : the area of Δ AMC = $\frac{1}{3}$ the area of Δ ABC

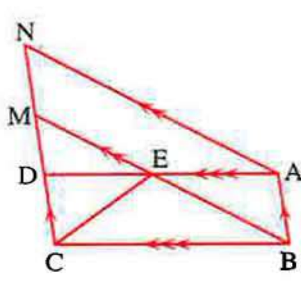


[b] **In the opposite figure :**

ABCD and ABMN are two parallelograms

Prove that :

The area of Δ EBC = $\frac{1}{2}$ the area of ▱ ABMN



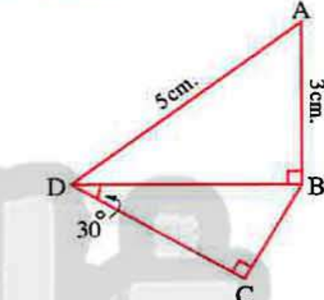
4 [a] **In the opposite figure :**

ABCD is a quadrilateral in which :

m (∠ ABD) = 90° , m (∠ BCD) = 90°

, m (∠ BDC) = 30° , AB = 3 cm. , AD = 5 cm.

Find : the lengths of $\overline{BD}$ and $\overline{BC}$



[b] **In the opposite figure :**

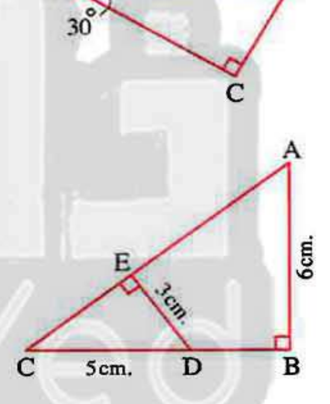
ABC is a right-angled triangle at B

, $\overline{DE} \perp \overline{AC}$, AB = 6 cm.

, ED = 3 cm. , CD = 5 cm.

1 **Prove that :** Δ ABC ~ Δ DEC

2 **Find :** the length of $\overline{AC}$



5 [a] The area of a trapezium is 88 cm^2. , its height is 8 cm. and the length of one of the two parallel bases is 10 cm. find the length of the other base.

[b] **In the opposite figure :**

m (∠ ABD) = 90° , $\overline{CE} \perp \overline{AB}$

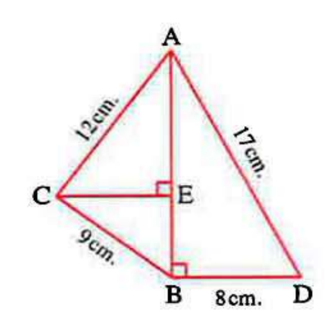
, CB = 9 cm. , AD = 17 cm.

, BD = 8 cm. , AC = 12 cm.

1 **Find :** the length of $\overline{AB}$

2 **Prove that :** m (∠ ACB) = 90°

3 **Find :** the length of the projection of $\overline{AC}$ on $\overleftrightarrow{AB}$





El-Montaza Educational Zone
Math's Supervision


Answer the following questions :

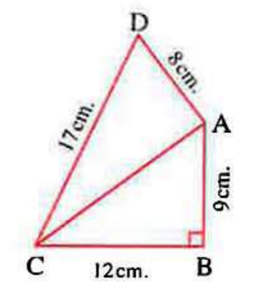
1 Choose the correct answer :

1. Any triangle has at least two .... interior angles.
   (a) right (b) obtuse (c) acute (d) straight
2. If the area of a trapezium is 100 cm^2. and its height is 5 cm. , then the length of its middle base = ... cm.
   (a) 20 (b) 30 (c) 50 (d) 40
3. ABCD is a parallelogram , $E \in \overline{BC}$, the area of ▱ ABCD = ... area of Δ EAD
   (a) the same (b) half (c) twice (d) third
4. If Δ XYZ is an obtuse-angled triangle at Y , then $(XZ)^2$ .... $(XY)^2 + (YZ)^2$
   (a) < (b) > (c) = (d) ≥
5. ABCD is a square , then the projection of $\overline{AC}$ on $\overleftrightarrow{BC}$ is ....
   (a) $\overline{AB}$ (b) $\overline{BC}$ (c) $\overline{CD}$ (d) $\overline{AD}$
6. A rhombus whose diagonal lengths are 6 cm. , 10 cm. has area .... cm^2.
   (a) 60 (b) 30 (c) 15 (d) 10

2 Complete each of the following :

1. If two straight lines intersect , then each two vertically opposite angles are ....
2. In the triangle ABC : if $(AB)^2 = (BC)^2 + (AC)^2$, then m (∠ ....) = 90°
3. Δ ABC ~ Δ XYZ , and m (∠ B) + m (∠ C) = 70° , then m (∠ X) = ...°
4. The number of axes of symmetry of the rectangle is ....
5. The ratio between the perimeters of two similar polygons is 3 : 5 , then the ratio between their lengths of two corresponding sides is ....

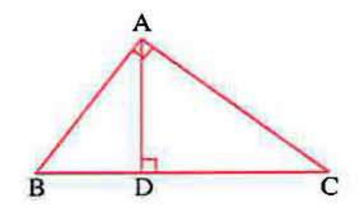
3 [a] In the opposite figure :



ABCD is a quadrilateral
, m (∠ B) = 90°
, AB = 9 cm. , BC = 12 cm.
, CD = 17 cm. and DA = 8 cm.

Prove that : m (∠ DAC) = 90°

[b] In the opposite figure :



ABC is a triangle , m (∠ BAC) = 90° , $\overline{AD} \perp \overline{BC}$

Then complete :

1. The projection of $\overline{AC}$ on $\overleftrightarrow{BC}$ is ....
2. The projection of $\overline{AD}$ on $\overleftrightarrow{BC}$ is ....

4 **[a] In the opposite figure :**

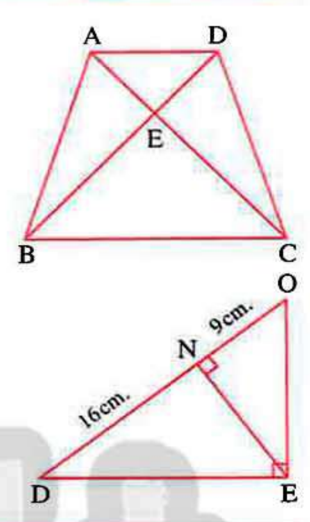
The area of Δ AEB

= the area of Δ DEC

Prove that : $\overline{AD} // \overline{BC}$



[b] In the opposite figure :



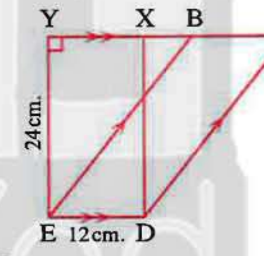
OED is a right-angled triangle at E

, $\overline{EN} \perp \overline{DO}$, DN = 16 cm.

and ON = 9 cm.

Find the length of : $\overline{EN}$, $\overline{EO}$, $\overline{ED}$

5 **In the opposite figure :**



$\overleftrightarrow{AB} // \overleftrightarrow{DE}$, X ∈ $\overleftrightarrow{AB}$ and Y ∈ $\overleftrightarrow{AB}$

, XDEY is a rectangle and $\overline{AD} // \overline{BE}$

1. **Prove that :** the area of figure ABED = the area of rectangle XYED
2. **Find :** the area of the figure ABED
3. If AD = 30 cm. Find the length of the perpendicular from B to $\overline{AD}$

9 El-Kalyoubia Governorate

Math's Inspection



Answer the following questions :

1 **Choose the correct answer from those given :**

1. The sum of measures of interior angles of a triangle equals .... °
   (a) 90 (b) 180 (c) 80 (d) 360
2. The area of the rhombus whose diagonal lengths are 6 cm. and 8 cm. = ... cm^2.
   (a) 7 (b) 24 (c) 48 (d) 14
3. ABCD is a parallelogram in which m (∠ A) = 120° , then m (∠ B) = ... °
   (a) 120 (b) 60 (c) 90 (d) 180

4 If $\Delta ABC \equiv \Delta XYZ$ and $m(\angle X) = 70°$, then $m(\angle A) =$ .... °

(a) 70 (b) 55 (c) 50 (d) 80

5 If $\Delta ABC \sim \Delta XYZ$, then $m(\angle B) = m(\angle$ ....$)$

(a) C (b) Z (c) X (d) Y

6 ΔABC in which $(AB)^2 > (BC)^2 + (AC)^2$, then angle C is ....

(a) acute (b) right (c) obtuse (d) straight

2 Complete each of the following :

1 Area of the parallelogram = length of the base × ....

2 Two polygons are similar if ....

3 If the point $A \in$ the line L , then the projection of the point A on the line L is ....

4 In ΔABC if $(AB)^2 = (BC)^2 + (AC)^2$, then $m(\angle$ .... $) = 90°$

5 Surfaces of two parallelograms with common base and between two parallel straight lines , one is carrying this base are ....

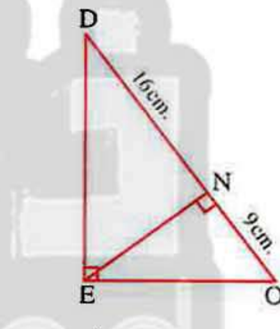
3 [a] In the opposite figure :

DEO is a right-angled triangle at E

, $\overline{EN} \perp \overline{DO}$, DN = 16 cm.

and ON = 9 cm.

Find the length of : $\overline{EN}$, $\overline{DE}$, $\overline{EO}$

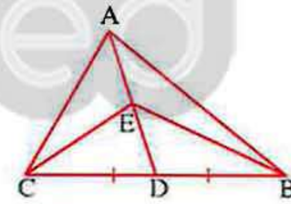


[b] In the opposite figure :

$\overline{AD}$ is a median in ΔABC , $E \in \overline{AD}$

and $\overline{BE}$, $\overline{CE}$ are drawn.

Prove that : the area of ΔABE = the area of ΔACE

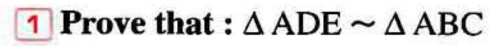


4 [a] In the opposite figure :

ABC is a triangle in which AB = 5 cm.

, BC = 6 cm. , AC = 4 cm. and $D \in \overline{AB}$

where AD = 3 cm. , $\overline{DE} \parallel \overline{BC}$, $\overline{DE} \cap \overline{AC} = \{E\}$

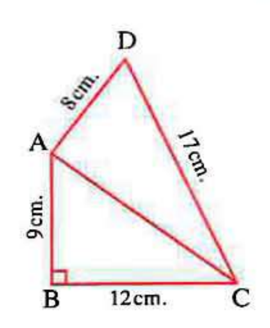


1 **Prove that :** $\Delta ADE \sim \Delta ABC$

2 Find the length of each of : $\overline{DE}$ and $\overline{AE}$

[b] The area of a trapezium is 108 cm². and the length of one of its parallel bases is 15 cm. , find the length of the other base , if the height of the trapezium is 8 cm.

5 **[a] In the opposite figure :**



ABCD is a quadrilateral

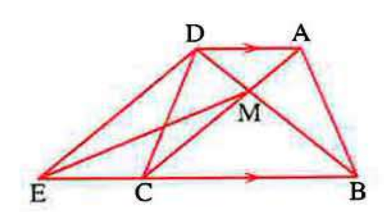
, m (∠ B) = 90° , AB = 9 cm.

, BC = 12 cm. , CD = 17 cm.

and DA = 8 cm.

Prove that : m (∠ DAC) = 90°

[b] In the opposite figure :



ABCD is a quadrilateral , $\overline{AD} \parallel \overline{BC}$, E ∈ $\overrightarrow{BC}$

, $\overline{AC} \cap \overline{BD} = \{M\}$

, the area of Δ ABM = the area of Δ ECM

Prove that : $\overline{DE} \parallel \overleftrightarrow{AC}$

10 El-Sharkia Governorate

Directorate of Education
Dep. of Governmental L. Schools



Answer the following questions :

1 **Choose the correct answer from those given :**

1. ABCD is a parallelogram in which AB = 5 cm. , BC = 10 cm. and its smaller height is 4 cm. , then its area = ... cm^2.
   (a) 40 (b) 20 (c) 10 (d) 50
2. Number of axis of symmetry of square is ....
   (a) 1 (b) 2 (c) 3 (d) 4
3. In Δ ABC , if $(AB)^2 > (BC)^2 + (AC)^2$, then angle C is .... angle.
   (a) acute (b) obtuse (c) right (d) straight
4. If the projection of a line segment on a straight line is a point , then the line segment .... straight line.
   (a) // (b) ⊥ (c) ≡ (d) ⊂
5. If M is the midpoint of $\overline{AB}$, then $(AB)^2$ = ... $(AM)^2$
   (a) 2 (b) $\frac{1}{2}$ (c) 4 (d) $\frac{1}{4}$
6. The area of the rhombus whose diagonal lengths are 16 cm. , 18 cm. = ... cm^2.
   (a) 144 (b) 148 (c) 128 (d) 288

2 **Complete each of the following :**

1 **In the opposite figure :**

$m(\angle ABC) = 90°$, $\overline{BE} \perp \overline{AC}$

, EA = 9 cm. , EC = 16 cm. , then AB = …………… cm.

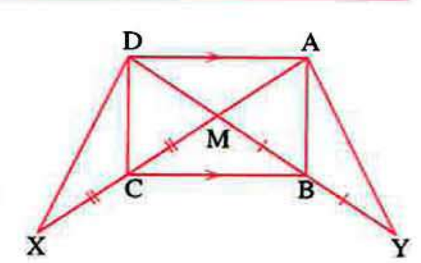
2 In Δ ABC , if $(AB)^2 = (AC)^2 + (BC)^2$, then m (……………) = 90°

3 The two triangles are similar if their corresponding side lengths are ……………

4 The median of a triangle divides its surface into ……………

5 The area of rectangle = ……………

3 [a] **In the opposite figure :**



$\overline{AD} // \overline{BC}$, MB = BY

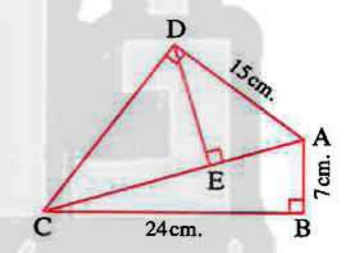
, MC = CX , $\overline{AX} \cap \overline{DY} = \{M\}$

Prove that : 1 the area of Δ MAB = the area of Δ MDC

2 the area of Δ ABY = the area of Δ DCX

[b] Determine the type of triangle ABC according to its angles where AB = 7 cm. , BC = 6 cm. , AC = 9 cm.

4 [a] **In the opposite figure :**



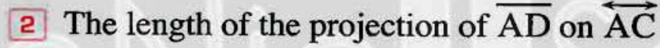
$m(\angle ADC) = m(\angle ABC) = 90°$, $\overline{DE} \perp \overline{AC}$

, AB = 7 cm. , BC = 24 cm.

, AD = 15 cm.

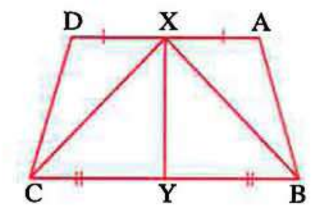
Find : 1 The length of $\overline{AC}$ and $\overline{DC}$

2 The length of the projection of $\overline{AD}$ on $\overleftrightarrow{AC}$



[b] Find the height of a trapezium with area of 450 cm^2. and two bases lengths are 24 cm. , 12 cm.

5 [a] **In the opposite figure :**



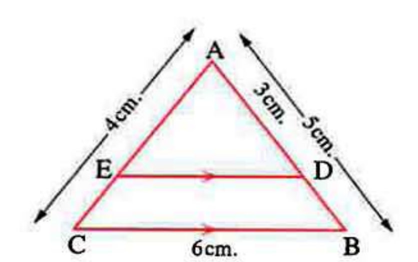
ABCD is a quadrilateral , YC = YB

, X is the midpoint of $\overline{AD}$, Y is the midpoint of $\overline{BC}$

, the area of the figure ABYX = the area of the figure DCYX

Prove that : $\overline{AD} // \overline{BC}$

[b] **In the opposite figure :**



ABC is a triangle , AB = 5 cm.

, BC = 6 cm. , AC = 4 cm.

, AD = 3 cm. , $\overline{DE} // \overline{BC}$

1 **Prove that :** $\Delta ADE \sim \Delta ABC$

2 **Find the length of :** $\overline{DE}$ and $\overline{EC}$



11 El-Dakahlia Governorate

Directorate of Education
Maths Supervision

Answer the following questions :

1 Choose the correct answer :

1 The area of a rhombus whose diagonal lengths are 6 cm. and 10 cm. is .... cm^2.

(a) 60 (b) 120 (c) 30 (d) 15

2 In Δ XYZ , if $(XZ)^2 = (XY)^2 - (ZY)^2$, then $\angle$ Z is .... angle.

(a) an acute (b) a straight (c) an obtuse (d) a right

3 If the perimeter of a square is 20 cm. , then its area = ... cm^2.

(a) 400 (b) 10 (c) 25 (d) 12.5

4 If $\Delta ABC \sim \Delta XYZ$, then m ($\angle$ ACB) = m ($\angle$ ....)

(a) XYZ (b) YXZ (c) ZYX (d) XZY

5 If the diameter length of a circle = 14 cm. , then its area = ... cm^2.

(a) 154 (b) 44 (c) 616 (d) 22

6 If ABC is a triangle , m ($\angle$ B) = 90° , $\overline{BD} \perp \overline{AC}$, then $(AB)^2$ = AD × ....

(a) AC (b) CD (c) BC (d) AD

2 Complete each of the following :

1 If the area of a square is 50 cm^2. , then its diagonal length = ...

2 Two polygons are similar if the corresponding side lengths are ....

3 If A $\in$ straight line L , then its projection on straight line L is ....

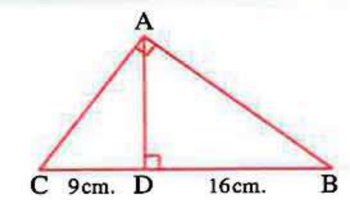
4 ABCD is a parallelogram , if m ($\angle$ A) = 80° , then m ($\angle$ B) = ...

5 If the perimeter of an equilateral triangle is 30 cm. and its height is 5 cm. , then its area = ... cm^2.

3 [a] In the opposite figure :

m ($\angle$ BAC) = 90° , $\overline{AD} \perp \overline{BC}$, CD = 9 cm. and DB = 16 cm.

Find : AC and AD

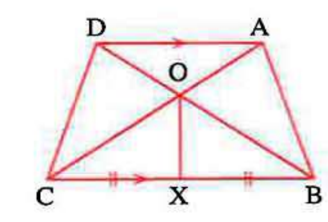


[b] In the opposite figure :

$\overline{DA}$ // $\overline{CB}$, XB = XC

Prove that :

the area of the figure ABXO = the area of the figure DCXO



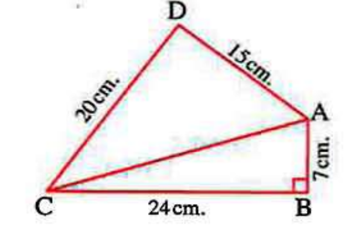
4 **[a] In the opposite figure :**

m (∠ B) = 90° , AB = 7 cm.

, BC = 24 cm. , AD = 15 cm.

and CD = 20 cm.

Prove that : m (∠ D) = 90°



[b] In Δ ABC , AB = 5 cm. , BC = 8 cm. and AC = 10 cm.

What is the type of the triangle according to its angles ? (write steps)

5 **[a]** A trapezium , the lengths of the two parallel bases are 4 cm. and 10 cm. , if its height is 5 cm. Calculate its middle base and its area.

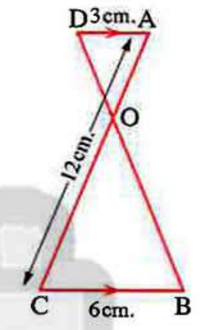
[b] In the opposite figure :

$\overline{DA}$ // $\overline{CB}$, AD = 3 cm. , BC = 6 cm.

and AC = 12 cm.

1 **Prove that :** Δ AOD ~ Δ COB

2 **Find :** the length of $\overline{AO}$



12 Suez Governorate

Directorate of Education
Inspection of Mathematics

Answer the following questions :

1 **Choose the correct answer :**

1 ABCD is a parallelogram in which m (∠ A) = 70° , then m (∠ B) = ...

(a) 70° (b) 110° (c) 180° (d) 540°

2 If ABC is a triangle , $(AB)^2 > (BC)^2 + (AC)^2$, then angle C is ....

(a) acute. (b) right. (c) obtuse. (d) straight.

3 **In the opposite figure :**

m (∠ BAC) = 90° , $\overline{AD} \perp \overline{BC}$

, DC = 9 cm. , DB = 16 cm.

, then AD = ... cm.



(a) 144 (b) 25 (c) 50 (d) 12

4 The area of the square whose diagonal length is 10 cm. is ....

(a) 100 cm^2. (b) 50 cm^2. (c) 40 cm^2. (d) 20 cm^2.

5 A trapezium whose lengths of two parallel bases are 6 cm. and 8 cm. , then the length of its middle base equals .... cm.

(a) 48 (b) 24 (c) 14 (d) 7

6 The ratio between the lengths of two corresponding sides of two similar polygons is 3 : 5 , then the ratio between their perimeters is ....

(a) 2 : 5 (b) 2 : 3 (c) 3 : 5 (d) 1 : 2

2 Complete each of the following :

1 The median of a triangle divides its surface into two triangular surfaces equals ....

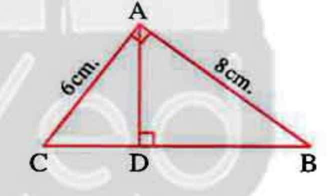
2 If ABC is a triangle , $(AC)^2 + (BC)^2 = (AB)^2$, then m (∠ ....) = 90°

3 All the regular polygons that have the same number of sides are ....

4 The area of rhombus is 24 cm^2. , if the length of one of its diagonals 8 cm. , then the length of the other diagonal is ....

5 If the point A ∈ the striaght line L , then the projection of the point A on the line L is ....

3 [a] In the opposite figure :

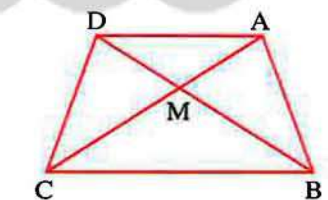


m (∠ CAB) = 90° , $\overline{AD} \perp \overline{BC}$

, AC = 6 cm. , AB = 8 cm.

Find : the length of the projection of $\overline{AB}$ on $\overleftrightarrow{BC}$

[b] In the opposite figure :



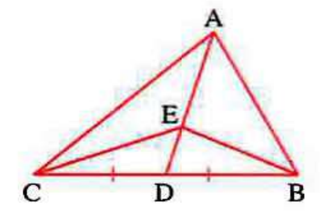
ABCD is a quadrilateral ,

the area of Δ AMB = the area of Δ DMC

Prove that : $\overline{AD}$ // $\overline{BC}$

4 [a] Determine the type of the greatest angle in Δ ABC where AB = 9 cm. , BC = 10 cm. , AC = 12 cm.

[b] In the opposite figure :



$\overline{AD}$ is the median of Δ ABC , E ∈ $\overline{AD}$

Prove that :

The area of Δ ABE = the area of Δ ACE

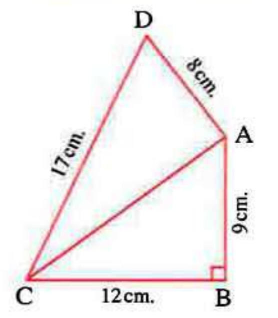
5 [a] **In the opposite figure :**

m (∠ B) = 90° , AB = 9 cm.

, BC = 12 cm. , AD = 8 cm.

, DC = 17 cm.

Prove that : m (∠ DAC) = 90°

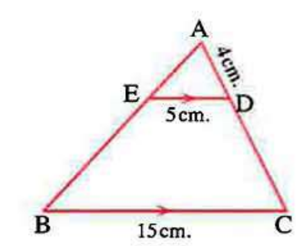


[b] **In the opposite figure :**

$\overline{ED}$ // $\overline{BC}$, AD = 4 cm.

, ED = 5 cm. , BC = 15 cm.

Find with proof : The length of $\overline{DC}$



13 Port Said Governorate

East Educational Directorate
mathematics Inspection



Answer the following questions :

1 **Choose the correct answer :**

1. In Δ ABC , if $(AB)^2 > (BC)^2 + (AC)^2$, then the angle C is ....
   (a) acute. (b) right. (c) obtuse. (d) straight.

2. If the lengths of the diagonals of a rhombus are 6 cm. and 8 cm.
   , then its perimeter = ... cm.
   (a) 24 (b) 28 (c) 14 (d) 20

3. If ABCD is a parallelogram of area 20 cm^2 and E ∈ $\overline{AD}$
   , then the area of Δ EBC = ... cm^2
   (a) 10 (b) 5 (c) 20 (d) 40

4. If the projection of a line segment on a straight line is a point
   , then the line segment .... the straight line.
   (a) // (b) ⊥ (c) ≡ (d) ⊂

5. The two triangles drawn on a common base and their vertices located on straight line parallel to the base are ....
   (a) congruent. (b) similar.
   (c) equal in perimeter. (d) equal in area.

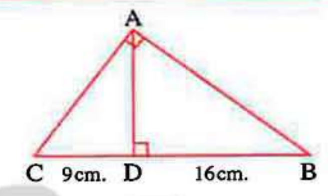
6. ABCD is a parallelogram in which : AB = 5 cm. , BC = 10 cm. and its smaller height is 4 cm. , then its greater height = ... cm.
   (a) 2 (b) 4 (c) 8 (d) 10

2 Complete each of the following :

1. If ∠ A complements ∠ B and ∠ B supplements ∠ C , if m (∠ A) = 30°
, then m (∠ C) = ...°
2. In Δ ABC , if $(AB)^2 = (BC)^2 + (AC)^2$, then m (∠ ....) = 90°
3. If two polygons are similar and the ratio between the lengths of two corresponding sides is 2 : 5 , then the ratio between their perimeters is ....
4. A trapezium whose lengths of the two parallel bases are 4 cm. and 6 cm. , then the length of its middle base = ... cm.
5. The rectangle is a parallelogram in which one of its angles is ....

3 [a] In the opposite figure :

Find : the length of $\overline{AB}$, $\overline{AC}$ and $\overline{AD}$



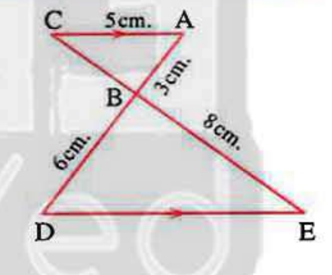
[b] ABCD is a trapezium in which $\overline{AD}$ // $\overline{BC}$, if BC = 2 AD = 20 cm. and its area = 180 cm^2.
Find its height.

4 [a] In the opposite figure :

$\overline{AC}$ // $\overline{ED}$, AB = 3 cm. , BD = 6 cm.
, AC = 5 cm. , BE = 8 cm.

Prove that : Δ ABC ~ Δ DBE

, then find : the length of $\overline{ED}$, $\overline{BC}$

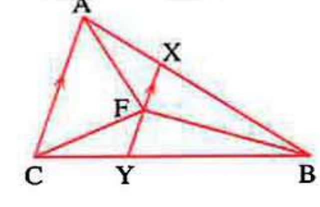


[b] In the opposite figure :

$\overline{AC}$ // $\overline{XY}$ and F is the midpoint of $\overline{XY}$

Prove that :

The area of Δ ABF = the area of Δ CBF



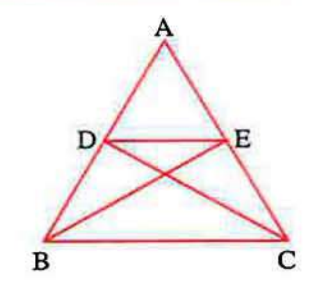
5 [a] In the opposite figure :

ABC is a triangle in which :

D ∈ $\overline{AB}$ and E ∈ $\overline{AC}$

, such that the area of Δ ABE = the area of Δ ACD

Prove that : $\overline{DE}$ // $\overline{BC}$



[b] In the opposite figure :

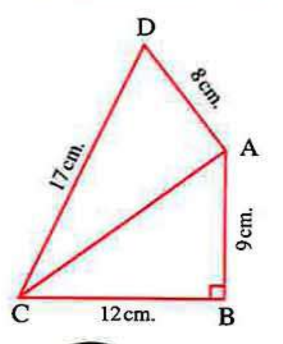
ABCD is a quadrilateral

, m (∠ B) = 90° , AB = 9 cm.

, BC = 12 cm. , CD = 17 cm.

and DA = 8 cm.

Prove that : m (∠ DAC) = 90°



14 El-Beheira Governorate

Bandar Damanhour Educational Zone
Amr Ibn El-Aass G.L.S.



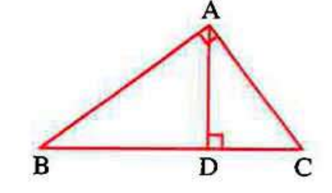
Answer the following questions :

1 Choose the correct answer :

1. In Δ ABC if $(AB)^2 = (AC)^2 - (BC)^2$, then ∠ C is .... angle.
   (a) an acute. (b) an obtuse. (c) a right. (d) a straight.
2. If the lengths of two adjacent sides in a parallelogram are 9 cm. and 6 cm. and the length of the smaller height 4 cm. , then its area is .... cm^2.
   (a) 30 (b) 36 (c) 24 (d) 15
3. The diagonal length of a square whose area 50 cm^2 equals .... cm.
   (a) 10 (b) 20 (c) 30 (d) 40
4. The median of a triangle divides its surface into two triangles ....
   (a) congruent. (b) equal in area. (c) similar. (d) coincide.
5. If $\overline{AB} // \overleftrightarrow{XY}$, then the length of the projection of $\overline{AB}$ on $\overleftrightarrow{XY}$ .... length of $\overline{AB}$
   (a) > (b) < (c) = (d) ≡
6. The number of axes of symmetry of the rhombus = ...
   (a) zero (b) 1 (c) 2 (d) 4

2 Complete each of the following :

1. In Δ ABC if $(AB)^2 = (BC)^2 + (AC)^2$, m (∠ B) = 50° , then m (∠ A) = ... °
2. In the two similar polygons there corresponding angles are ....
3. The area of rhombus is 24 cm^2 , the length of one of its diagonals 8 cm. , then the length of the other diagonal is .... cm.
4. The sum of the measures of the exterior angles of a triangle = ...°
5. **In the opposite figure :**
   Δ ABC is a right-angled triangle at A
   , $\overline{AD} \perp \overline{BC}$
   $(AD)^2$ = ... × ....



3 **[a]** The area of a trapezium is 180 cm^2, its height is 9 cm. find the lengths of its parallel bases if the ratio between their lengths is 3 : 5

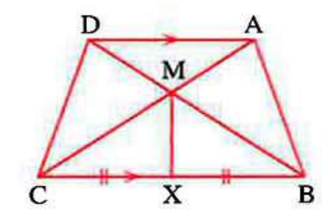
[b] In the opposite figure :

$\overline{AD} \parallel \overline{BC}$, $\overline{AC} \cap \overline{BD} = \{M\}$

, X is the midpoint of $\overline{BC}$

Prove that : the area of the shape ABXM

= the area of the shape DCXM



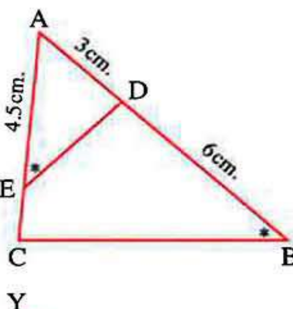
4 **[a] In the opposite figure :**

m (∠ AED) = m (∠ B)

, AD = 3 cm. , AE = 4.5 cm. , DB = 6 cm.

1 **Prove that :** Δ AED ~ Δ ABC

2 **Find :** the length of $\overline{CE}$



[b] In the opposite figure :

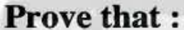
ABCD and ABXY

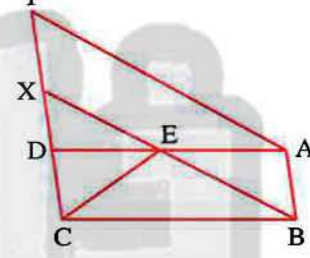
are two parallelograms.

Prove that :

the area of Δ EBC

= $\frac{1}{2}$ the area of ▱ ABXY



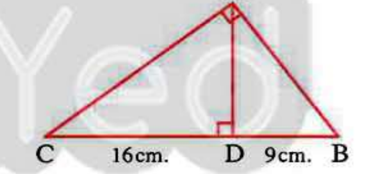


5 **[a] In the opposite figure :**

ABC is a right-angled triangle at A ,

D ∈ $\overline{CB}$, $\overline{AD} \perp \overline{CB}$, CD = 16 cm. , DB = 9 cm.

Find : the length of $\overline{AC}$, $\overline{AB}$, $\overline{AD}$



[b] ABC is a triangle in which , AB = 7 cm. , BC = 10 cm. , AC = 8 cm.

Determine the type of Δ ABC according to its angles.

15 Beni Suef Governorate

Directorate of official Language School
Education administration



Answer the following questions :

1 **Choose the correct answer :**

1 If the area of a parallelogram is 35 cm^2 and its height is 5 cm. , then the length of the corresponding base to this height is .... cm.

(a) 5 (b) 7 (c) 9 (d) 30

2 If the area of a trapezium is 32 cm^2. and its height is 4 cm. , then the length of its middle base equals .... cm.

(a) 4 (b) 8 (c) 14 (d) 16

3 If two polygons are similar and the ratio between the lengths of two corresponding sides is 2 : 3 , then the ratio between their perimeters is ....

(a) 1 : 2 (b) 4 : 9 (c) 2 : 3 (d) 9 : 4

4 **In the opposite figure :**

Δ ABC is right-angled at A

, $\overline{AD} \perp \overline{BC}$, then $(AB)^2$ = ...

(a) BD × BC (b) DC × BC

(c) BD × DC (d) AD × BC

5 If $\overline{AB}$ // $\overleftrightarrow{XY}$, then the length of the projection of $\overline{AB}$ on $\overleftrightarrow{XY}$ .... the length of $\overline{AB}$

(a) = (b) $>$ (c) $<$ (d) $\neq$

6 The smallest number of the acute angle in any triangle is ....

(a) zero (b) 1 (c) 2 (d) 3

2 Complete each of the following :

1 Triangles with congruent bases on one straight line and have a common vertex are ....

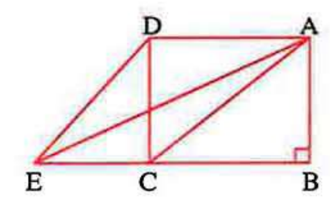
2 A triangle whose side lengths are 7 cm. , 14 cm. and 16 cm. , then its type according to its angles is ....

3 In Δ ABC , if $(AC)^2 < (AB)^2 + (BC)^2$, then the type of the angle B is ....

4 The sum of the measures of the interior angles of a triangle equals .... °

5 Each two opposite angles in a parallelogram are ....

3 [a] In the opposite figure :

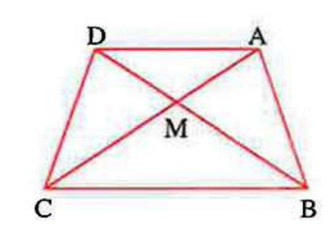


ABCD is a rectangle and E $\in \overrightarrow{BC}$

Prove that :

The area of Δ DAE = the area of Δ ABC

[b] In the opposite figure :



ABCD is a quadrilateral

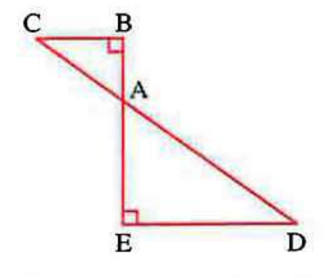
, its diagonals intersect at M

and the area of Δ ABM = the area of Δ DCM

Prove that : $\overline{AD}$ // $\overline{BC}$

4 [a] Find the area of a rhombus whose diagonals lengths are 10 cm. and 8 cm.

[b] **In the opposite figure :**

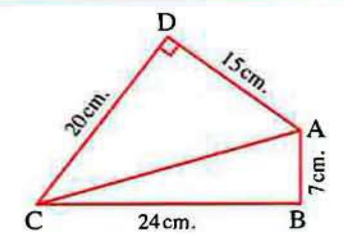


$\overline{BE} \cap \overline{DC} = \{A\}$ and

$m(\angle B) = m(\angle E) = 90^\circ$

Prove that : $\Delta ABC \sim \Delta AED$

5 [a] **In the opposite figure :**

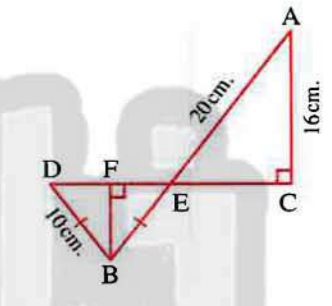


ABCD is a quadrilateral in which $m(\angle ADC) = 90^\circ$

, AB = 7 cm. , BC = 24 cm. , CD = 20 cm. , DA = 15 cm.

Prove that : $m(\angle ABC) = 90^\circ$

[b] **In the opposite figure :**



$\overline{AB} \cap \overline{CD} = \{E\}$

, E is the midpoint of $\overline{CD}$, $\overline{BF} \perp \overline{CD}$

, AC = 16 cm. , AE = 20 cm. and BD = BE = 10 cm.

Find the length of the projection of $\overline{BD}$ on $\overleftrightarrow{CD}$



Schools Examinations on Geometry



1 Cairo Governorate

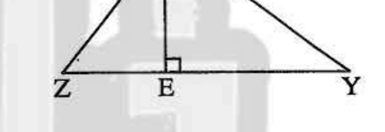
El-Nozha Directorate of Education
Modern Language Schools



Answer the following questions :

1 Choose the correct answer :

1. The area of the trapezium whose middle base is of length 7 cm. and its height is 6 cm. equals ....
   (a) 21 cm^2 (b) 40 cm^2 (c) 42 cm^2 (d) 13 cm^2
2. In Δ ABC : if m ($\angle$ C) = 90° , AB = 20 cm. and BC = 16 cm. , then AC = ... cm.
   (a) 9 (b) 12 (c) $4\sqrt{41}$ (d) 25
3. **In the opposite figure :**
   EY × EZ = ...
   (a) $(XE)^2$ (b) $(XZ)^2$
   (c) $(YZ)^2$ (d) $(XY)^2$

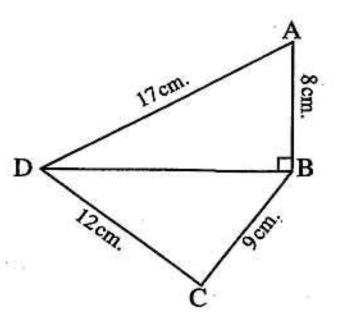


4. The triangle whose sides lengths are 5 cm. , 8 cm. and 7 cm. is ....-angled triangle.
   (a) right (b) acute (c) obtuse (d) straight
5. If the triangle base length is 6 cm. and its area is 24 cm^2 , then its corresponding height is ....
   (a) 18 cm. (b) 8 cm. (c) 4 cm. (d) 10 cm.
6. If $\overline{AB} \parallel \overline{XY}$, then the length of the projection of $\overline{AB}$ on $\overleftrightarrow{XY}$ .... the length of $\overline{AB}$
   (a) < (b) > (c) = (d) ≥

2 Complete :

1. The two polygons are similar if their corresponding side lengths are .... and their corresponding angle are ....
2. If Δ ABC ~ Δ XYZ , m ($\angle$ A) + m ($\angle$ B) = 60° , then m ($\angle$ Z) = ...
3. If Δ ABC is an obtuse-angled triangle at B , then $(AC)^2$ .... $(AB)^2 + (BC)^2$
4. If the length of the diagonal of a square is 10 cm. , then its area = ... cm^2
5. If the ratio between the length of two corresponding sides of two similar polygons is 2 : 5 and the perimeter of the smaller one is 12 cm. , then the perimeter of the other one is ....

3 **[a] In the opposite figure :**



ABCD is a quadrilateral in which :

AB = 8 cm. , BC = 9 cm.

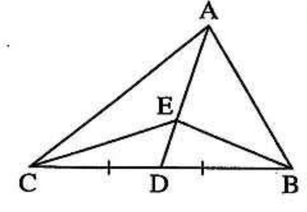
, CD = 12 cm. , AD = 17 cm.

and $\overline{DB} \perp \overline{AB}$

1 **Find :** the length of $\overline{BD}$

2 **Prove that :** m (∠ C) = 90°

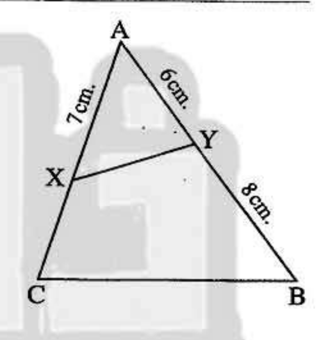
[b] In the opposite figure :



Δ ABC with a median $\overline{AD}$, E ∈ $\overline{AD}$

Prove that : the area of Δ ABE = the area of Δ ACE

4 **[a] In the opposite figure :**

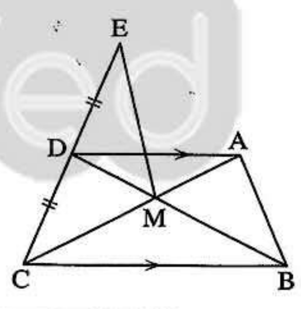


Δ AXY ~ Δ ABC , AX = 7 cm.

, AY = 6 cm. , YB = 8 cm.

Find : the length of $\overline{XC}$

[b] In the opposite figure :

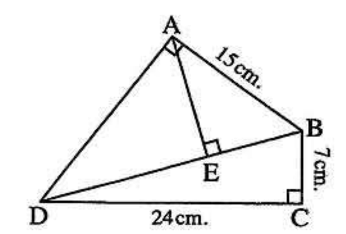


$\overline{AD}$ // $\overline{BC}$, $\overline{AC} \cap \overline{BD}$ = {M}

, D is the midpoint of $\overline{EC}$

Prove that : the area of Δ MDE = the area of Δ AMB

5 **In the opposite figure :**



ABCD is a quadrilateral , m (∠ BCD) = m (∠ BAD) = 90°

, $\overline{AE} \perp \overleftrightarrow{BE}$

1 **Find :** the length of $\overline{BD}$ and $\overline{AD}$

2 **Find :** the length of the projection of $\overline{AB}$ on $\overleftrightarrow{BD}$



2 Cairo Governorate

Shoubra Educational Zone

Answer the following questions :

1 Choose the correct answer :

1 In Δ ABC , if $(AB)^2 > (BC)^2 + (AC)^2$, then m ($\angle$ C) is ....

(a) acute. (b) right. (c) obtuse. (d) straight.

2 ABCD is a parallelogram in which m ($\angle$ A) = 70° , then m ($\angle$ B) = ...°

(a) 70 (b) 110 (c) 180 (d) 360

3 The diagonals of isosceles trapezium are ....

(a) parallel (b) perpendicular (c) congruent (d) not equal

4 A rhombus its two diagonals of lengths 8 cm. and 6 cm. , its area equals .... cm^2

(a) 14 (b) 20 (c) 24 (d) 48

5 $\overline{AB} \parallel \overleftrightarrow{CD}$, then the length of the projection of $\overline{AB}$ on $\overleftrightarrow{CD}$ .... the length of $\overline{AB}$

(a) > (b) < (c) = (d) ≤

6 Any triangle has at least two .... angles.

(a) right. (b) obtuse. (c) acute. (d) straight.

2 Complete each of the following :

1 The square of diagonal length 12 cm. , then its area = ... cm^2

2 If each of two triangles is similar to a third triangle , then they are ....

3 The median of a triangle divides it into two triangles ....

4 If Δ ADE ~ Δ ABC , AE : AC = 1 : 2 and DE = 5 cm. , then BC = ... cm.

5 Each two opposite angles in a parallelogram are ....

3 [a] In the opposite figure :

m ($\angle$ DAC) = 90° , AD = 8 cm.

, DC = 17 cm. , AB = 9 cm.

, BC = 12 cm.

Prove that : m ($\angle$ B) = 90°

D
8cm.
A
17cm.
9cm.
C
12cm.
B

[b] Find the area of a trapezium :

Whose two parallel bases lengths are 12 cm. , 7 cm. and its height is 5 cm.

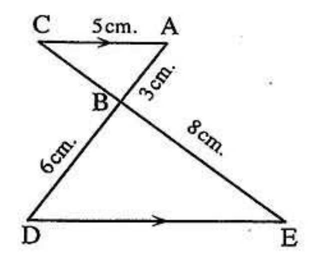
4 **[a] In the opposite figure :**

$\overline{AC} // \overline{ED}$, $\overline{AD} \cap \overline{CE} = \{B\}$, AC = 5 cm.

, AB = 3 cm. and BD = 6 cm.

, BE = 8 cm.

Prove that : Δ ABC $\sim$ Δ DBE



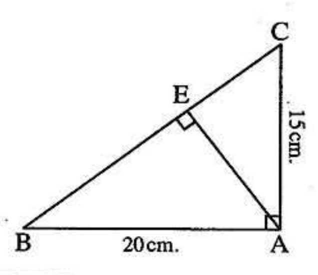
[b] In the opposite figure :

ABC is a right-angled triangle at A , $\overline{AE} \perp \overline{BC}$

Find :

1 The length of the projection of $\overline{AB}$ on $\overleftrightarrow{BC}$

2 The length of $\overline{EC}$



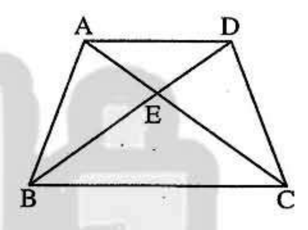
5 [a] Determine the type of triangle ABC according to its angles where

AB = 7 cm. , BC = 6 cm. , AC = 9 cm.

[b] In the opposite figure :

The area of Δ AEB = the area of Δ DEC

Prove that : $\overline{AD} // \overline{BC}$



3 Cairo Governorate

El-Zeiton Zone

Talaea Gaber El Ansary Language School



Answer the following questions :

1 **Choose the correct answer :**

1 The lengths of two adjacent sides in a parallelogram are 6 cm. , 7 cm. and the greater height is 5 cm. , then its area = ... cm^2

(a) 30 (b) 35 (c) 42 (d) 49

2 A trapezium whose middle base length is 8 cm. , then the lengths of the parallel bases may be ....

(a) 4 cm. , 4 cm. (b) 3 cm. , 5 cm. (c) 4 cm. , 6 cm. (d) 6 cm. , 10 cm.

3 A perimeter of a square is 20 cm. , then its area = ... cm.

(a) 400 (b) 80 (c) 25 (d) 20

4 In Δ ABC , if $(AB)^2 > (BC)^2 + (AC)^2$, then angle C is ....

(a) acute. (b) obtuse. (c) right. (d) straight.

5 ABC is a right-angled triangle at B , $\overline{BD} \perp \overline{AC}$, then the projection of $\overline{BD}$ on $\overleftrightarrow{AC}$ is ....

(a) A (b) B (c) C (d) D

6 The ratio between the lengths of two corresponding sides of two similar polygons is 3 : 5 , then the ratio between their perimeters is ....

(a) 3 : 5 (b) 5 : 3 (c) 2 : 5 (d) 9 : 25

2 Complete the following :

1 The two polygons are similar , if their corresponding side lengths are .... and their corresponding angles are ....

2 The area of rhombus is 12 cm^2 , if the length of one of its diagonals is 4 cm. , then the length of the other diagonal = ... cm.

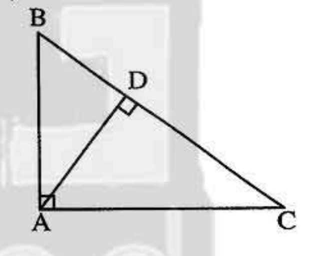
3 The complement of an angle of measure 25° equals ....

4 XYZ is a triangle in which $(XY)^2 = (XZ)^2 - (ZY)^2$, then m (∠ ....) = 90°

5 A rectangle whose perimeter is 28 cm. , and its length is 8 cm. , then the length of its diagonal = ... cm.

3 [a] In the opposite figure :

m (∠ BAC) = 90° , $\overline{AD} \perp \overline{BC}$



Complete :

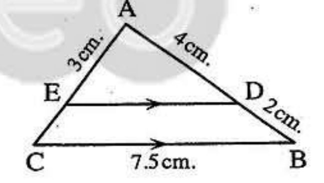
1 $(AB)^2$ = ... × ....

2 $(AD)^2$ = ... × ....



[b] In the opposite figure :

$\overline{DE}$ // $\overline{BC}$, AD = 4 cm. , AE = 3 cm. , BD = 2 cm. and BC = 7.5 cm.



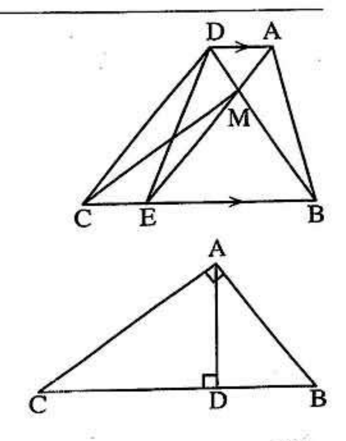
1 **Prove that :** Δ ADE ~ Δ ABC

2 **Find :** the length of $\overline{ED}$

4 [a] In the opposite figure :

$\overline{AD}$ // $\overline{BC}$, $\overline{AE} \cap \overline{BD}$ = {M} , the area of Δ AMB = the area of Δ EMC

Prove that : $\overline{ME}$ // $\overline{DC}$



[b] In the opposite figure :

$\overline{AD} \perp \overline{CB}$, $\overline{AC} \perp \overline{AB}$

Prove that : Δ ABC ~ Δ DBA ~ Δ DAC

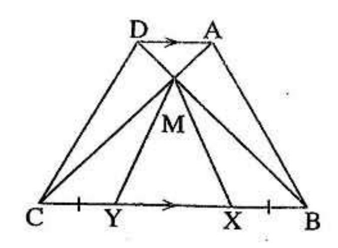
5 **[a] In the opposite figure :**

$\overline{AD} \parallel \overline{BC}$, $\overline{AC} \cap \overline{BD} = \{M\}$

, BX = CY

Prove that :

The area of the figure ABXM = The area of a figure DCYM



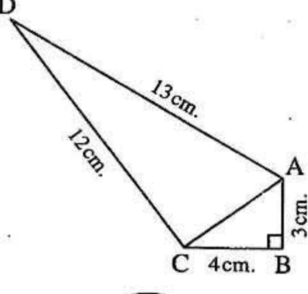
[b] In the opposite figure :

BC = 4 cm. , AD = 13 cm.

, AB = 3 cm. , DC = 12 cm. , m (∠ B) = 90°

1 **Find :** The length of $\overline{AC}$

2 **Prove that :** m (∠ ACD) = 90°



4 Giza Governorate

Omrania Directorate
El-Sadat Governmental Language School



Answer the following questions :

1 **Choose the correct answer :**

1 In Δ ABC , if $(AB)^2 > (BC)^2 + (AC)^2$, then ∠ C is ....

(a) acute. (b) right. (c) obtuse. (d) straight.

2 A rhombus whose diagonal lengths are 6 cm. , 10 cm. its area = ... cm^2.

(a) 60 (b) 30 (c) 15 (d) 10

3 If the length of the middle base of a trapezium is 8 cm. and its surface area is 56 cm^2. , then its height = ... cm.

(a) 32 (b) 24 (c) 448 (d) 7

4 If the ratio of an enlargement between two triangles equals 1 , then the two triangles are ....

(a) congruent. (b) enlargement. (c) coincide. (d) reduction.

5 Any triangle has at least two .... angles.

(a) right. (b) obtuse. (c) acute. (d) straight.

6 The isosceles triangle has .... axis of symmetry.

(a) zero (b) one (c) two (d) three

2 **Complete each of the following :**

1 The median of a triangle divides it into two triangles .... in area.

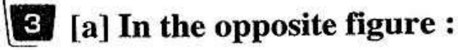
2 Two triangles are similar if their corresponding side lengths are ....

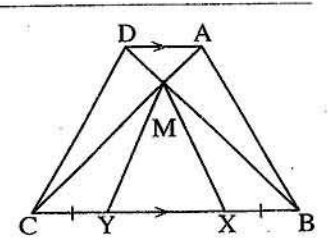
3 ABCD is a rectangle , the projection of $\overline{AB}$ on $\overleftrightarrow{BC}$ is ....

4 Surfaces of two parallelograms with common base and between two parallel straight lines one is carrying this base are ....

5 ABCD is a parallelogram its area = 36 cm^2 , E $\in \overline{AD}$, then the area of Δ EBC = ... cm^2

---

3 
[a] In the opposite figure :

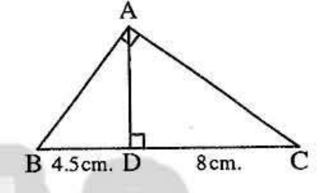


$\overline{AD} \parallel \overline{BC}$, $\overline{AC} \cap \overline{BD} = \{M\}$

, X $\in \overline{BC}$, Y $\in \overline{BC}$ such that BX = CY

Prove that : the area of shape ABXM = the area of shape DCYM

[b] In the opposite figure :



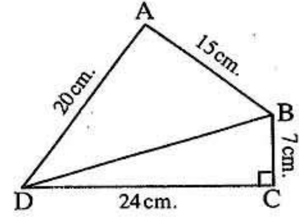
ABC is a triangle in which : m ($\angle$ A) = 90° , $\overline{AD} \perp \overline{BC}$

, BD = 4.5 cm. , DC = 8 cm.

Find : the length of each of $\overline{AC}$, $\overline{AB}$, $\overline{AD}$

---

4 **[a] In the opposite figure :**



$\overline{AB} \parallel \overline{DC}$, $\overline{AD} \cap \overline{BC} = \{M\}$

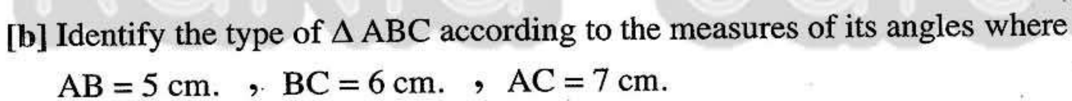
, AB = 10 cm. , AM = 6 cm.

, MD = 12 cm. , MC = 16 cm.


1 **Prove that :** Δ AMB ~ Δ DMC



2 **Find :** the length of $\overline{CD}$, $\overline{MB}$


[b] Identify the type of Δ ABC according to the measures of its angles where

AB = 5 cm. , BC = 6 cm. , AC = 7 cm.

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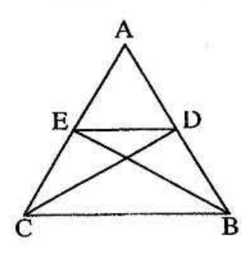
5 **[a] In the opposite figure :**

m ($\angle$ BCD) = 90° , AB = 15 cm.

, BC = 7 cm. , CD = 24 cm. , AD = 20 cm.

Prove that : m ($\angle$ BAD) = 90°

[b] In the opposite figure :



If the area of Δ ADC = the area of Δ AEB

Prove that : $\overline{DE} \parallel \overline{BC}$

5 Giza Governorate

Abo El-Nomoros Directorate
Inspection of maths



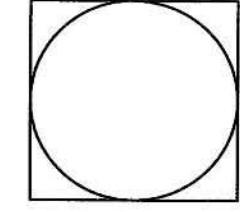
Answer the following questions :

1 Complete each of the following :

1. The two triangles are similar if their corresponding sides are ....
2. In Δ ABC , if $(AC)^2 + (BC)^2 = (AB)^2$, then m ($\angle$ ....) = 90°
3. A square its side length is 5 cm. , then its diagonal length = ... cm.
4. If $\overline{AB} \perp \overline{BC}$, then the projection of $\overline{AB}$ on $\overleftrightarrow{BC}$ is ....
5. A rhombus its diagonal lengths are 8 cm. and 7 cm. , then its area = ... cm^2.

2 Choose the correct answer :

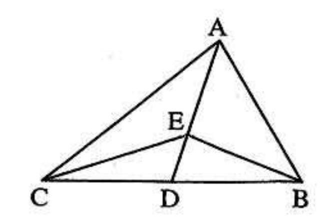
1. If the two similar triangles are congruent , then the ratio of enlargement = ...
   (a) 1 (b) 2 (c) 0.5 (d) 0.25
2. A triangle its side lengths are 3 cm. , 4 cm. and 5 cm. , then its area = ... cm^2.
   (a) 12 (b) 6 (c) 10 (d) 15
3. A parallelogram its area is 27 cm^2. , if its base length three times its height , then its height = ... cm.
   (a) 27 (b) 9 (c) 3 (d) 6
4. If the measure of the smallest angle of a triangle is 20° , then the possible measure of the greatest angle in this triangle = ...°
   (a) 90 (b) 140 (c) 159 (d) 160
5. The suitable unit to measure the height of a house is ....
   (a) cm. (b) dm. (c) m. (d) km.
6. If the area of the opposite square = 36 cm^2.
   , then the area of the circle = ... cm^2.
   (a) 6 π (b) 9 π
   (c) 36 π (d) 9



3 [a] In the opposite figure :

ABC is a triangle in which
, $\overline{AD}$ is median , E $\in \overline{AD}$

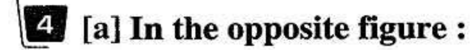
Prove that : the area of Δ ABE = the area of Δ ACE



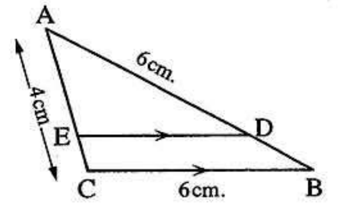
[b] Determine the type of Δ ABC according to its angles if

AB = 7 cm. , BC = 3 cm. and AC = 5 cm.

---

4 

[a] In the opposite figure :



$\overline{DE} \parallel \overline{BC}$, AD = BC = 6 cm.

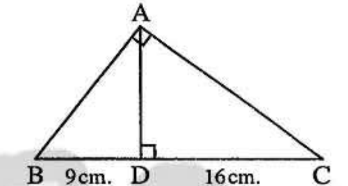
, AB = 8 cm. , AC = 4 cm.

1. **Prove that :** Δ ADE $\sim$ Δ ABC
2. **Find :** the lengths of $\overline{AE}$ and $\overline{DE}$

[b] Find the area of a trapezium if the lengths of its parallel bases are 5 cm. , 9 cm. and its height is 4 cm.

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5 **[a] In the opposite figure :**

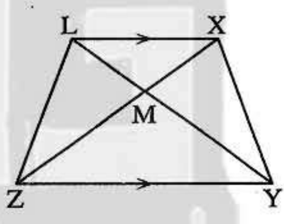


ABC is a right-angled triangle at A

, $\overline{AD} \perp \overline{BC}$, BD = 9 cm. , CD = 16 cm.

Find : the length of $\overline{AC}$, $\overline{AB}$ and $\overline{AD}$

[b] In the opposite figure :



XYZL is a trapezium in which

, $\overline{XL} \parallel \overline{YZ}$, $\overline{XZ} \cap \overline{LY} = \{M\}$

Prove that : the area of Δ XMY = the area of Δ LMZ

6 Alexandria Governorate

West Educational zone
Inspectorate of Mathematics



Answer the following questions :

1 **Complete each of the following :**

1. The area of the rhombus whose diagonal lengths are12 cm. , 8 cm. equals .... cm^2.
2. If $\overline{AD} \perp \overline{BC}$, then the length of projection of $\overline{AD}$ on $\overleftrightarrow{BC}$ equals .... cm.
3. Δ ABC is a right-angled triangle at B in which AB = 5 cm. , BC = 12 cm. , then AC = ... cm.
4. In Δ ABC : AB = 8 cm. , BC = 9 cm. and AC = 6 cm. , then the type of this triangle according to its angles is ....
5. The number of axes of symmetry of an isosceles triangle equals ....

2 Choose the correct answer :

1 The diagonals of an isosceles trapezium are ....

(a) congruent. (b) perpendicular.
(c) bisect each other. (d) parallel.

2 If the ratio between two corresponding sides of two similar triangles is 1 : 2 , and the measure of an angle of the first triangle equals 60° , then the measure of its corresponding angle in the other triangle equals ....

(a) 30° (b) 120° (c) 60° (d) 62°

3 The image of point (2 , 0) is itself by reflection on ....

(a) x-axis (b) y-aixs
(c) origin point. (d) x-axis followed by y-axis

4 The perpendicular segment drawn from the right angle of a triangle to the hypotenuse divides it into two .... triangles.

(a) obtuse angle (b) acute angle
(c) equelateral (d) similar

5 The measure of the complementary angle of an angle whose measure $x°$ equals ....

(a) 90° (b) $90° - x°$ (c) $x° - 90°$ (d) $90\, x°$

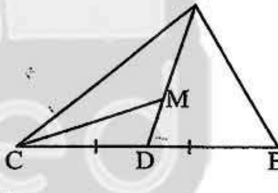
6 ABCD is a parallelogram , E ∈ BC , then the area of ▱ ABCD = ... area of Δ EAD

(a) the same (b) half (c) twice (d) third

3 [a] In the opposite figure :

Δ ABC , M is the point of concurrence

Prove that : the area of Δ AMC = $\frac{1}{3}$ the area of Δ ABC

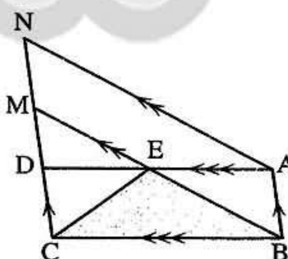


[b] In the opposite figure :

ABCD and ABMN are two parallelograms

Prove that :

The area of Δ EBC = $\frac{1}{2}$ the area of ▱ ABMN



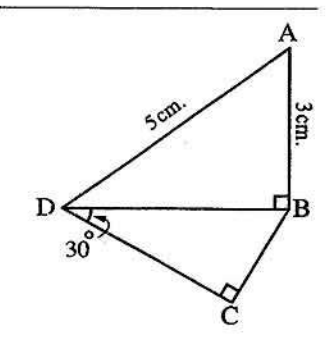
4 [a] In the opposite figure :

ABCD is a quadrilateral in which :

m (∠ ABD) = 90° , m (∠ BCD) = 90°

, m (∠ BDC) = 30° , AB = 3 cm. , AD = 5 cm.

Find : the lengths of $\overline{BD}$ and $\overline{BC}$

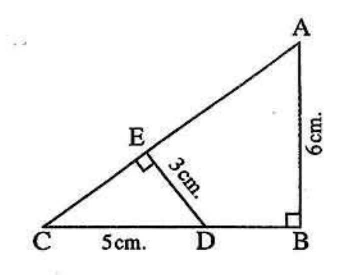


[b] In the opposite figure :

ABC is a right-angled triangle at B

, $\overline{DE} \perp \overline{AC}$, AB = 6 cm.

, ED = 3 cm. , CD = 5 cm.



[1] **Prove that :** $\Delta ABC \sim \Delta DEC$

[2] **Find :** the length of $\overline{AC}$

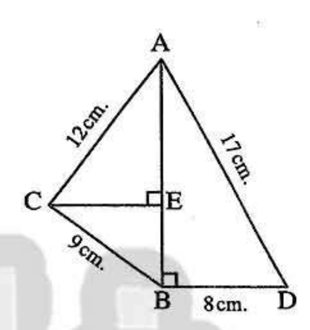
5 [a] The area of a trapezium is 88 cm^2 , its height is 8 cm. and the length of one of the two parallel bases is 10 cm. find the length of the other base.

[b] In the opposite figure :

m ($\angle$ ABD) = 90° , $\overline{CE} \perp \overline{AB}$

, CB = 9 cm. , AD = 17 cm.

, BD = 8 cm. , AC = 12 cm.



[1] **Find :** the length of $\overline{AB}$

[2] **Prove that :** m ($\angle$ ACB) = 90°

[3] **Find :** the length of the projection of $\overline{AC}$ on $\overleftrightarrow{AB}$

7 Alexandria Governorate

El Montazah Directorate
Brilliance Language School



Answer the following questions :

1 Complete each of the following :

[1] If the area of a rhombus equals 30 cm^2 and the length of one of its diagonals equals 6 cm. , then the length of the other diagonal equals .... cm.

[2] Surface area of two parallelograms with common base and between two parallel straight lines , one is carrying this base , are ....

[3] If $\overline{AB} \perp \overleftrightarrow{CD}$, then the length of the projection of $\overline{AB}$ on $\overleftrightarrow{CD}$ equals .... cm.

[4] In Δ ABC , AB = 8 cm. , BC = 9 cm. and AC = 6 cm. , then its type according to its angles is ....

[5] If two straight lines intersect , then each two vertically opposite angles are ....

2 Choose the correct answer :

[1] The median of triangle divides its surface into two triangles ....

(a) congruent. (b) equal in area. (c) similar. (d) coincident.

[2] The isosceles trapezium has .... axis of symmetry.

(a) 1 (b) 2 (c) 3 (d) 0

[3] Area of a parallelogram = 24 cm^2 and its base length is 6 cm.

, then its corresponding height = ... cm.

(a) 8 (b) 4 (c) 48 (d) 12

[4] If the ratio of enlargement between two similar triangles equals 1 , then the two triangles are ....

(a) congruent. (b) different. (c) right-angled. (d) parallel.

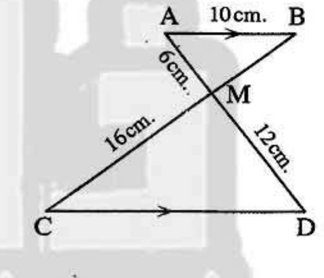
[5] The number of diagonals of any triangle = ...

(a) 4 (b) 0 (c) 2 (d) 1

[6] If Δ ABC ~ Δ XYZ , then m ($\angle$ B) = m ($\angle$ ....)

(a) C (b) Z (c) X (d) Y

3 [a] **In the opposite figure :**



$\overline{AB}$ // $\overline{DC}$, $\overline{AD} \cap \overline{BC}$ = {M}

, AB = 10 cm. , AM = 6 cm.

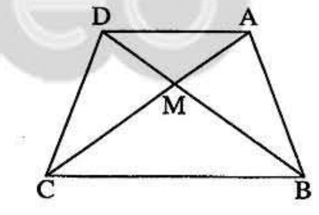
, MD = 12 cm. , MC = 16 cm.

[1] **Prove that :** Δ AMB ~ Δ DMC

[2] **Find :** the length of $\overline{CD}$



[b] **In the opposite figure :**



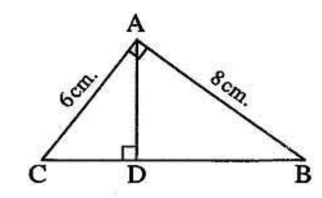
ABCD is a quadrilateral

, its diagonals intersect at M

and the area of Δ ABM = the area of Δ DCM

Prove that : $\overline{AD}$ // $\overline{BC}$

4 [a] **In the opposite figure :**



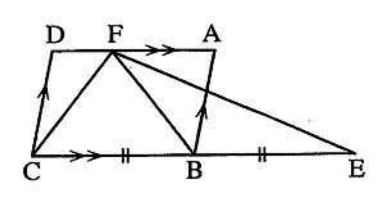
ABC is a triangle in which :

m ($\angle$ BAC) = 90° , $\overline{AD} \perp \overline{BC}$

, AB = 8 cm. and AC = 6 cm.

Find : the lengths of $\overline{CB}$, $\overline{CD}$ and $\overline{AD}$

[b] In the opposite figure :



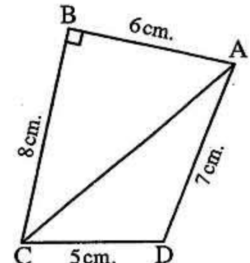
ABCD is a parallelogram

, $E \in \overrightarrow{CB}$ where BC = BE

Prove that : the area of Δ FEC = the area of ▱ ABCD

5 [a] Find the height of a trapezium with area of 450 cm^2 and the two parallel base lengths are 24 cm. and 12 cm.

[b] In the opposite figure :



ABCD is a quadrilateral in which : m ($\angle$ B) = 90°

, AB = 6 cm. , BC = 8 cm. , AD = 7 cm.

and DC = 5 cm.

Determine the type of the angle which has the greatest measure in Δ ACD

8 El-Kalyoubia Governorate

Math's Inspection



Answer the following questions :

1 **Choose the correct answer :**

1 ABCD is a parallelogram in which m ($\angle$ A) = 70° , then m ($\angle$ B) = ... °

(a) 70 (b) 110 (c) 180 (d) 360

2 A rhombus whose diagonal lengths are 6 cm. and 10 cm. and its area = ... cm^2

(a) 60 (b) 30 (c) 15 (d) 10

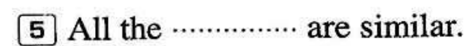
3 A square of perimeter 20 cm. , then its area = ... cm^2

(a) 20 (b) 25 (c) 50 (d) 100

4 The number of the triangles in the opposite figure = ...

(a) 3 (b) 4

(c) 5 (d) 6



A
B C D E

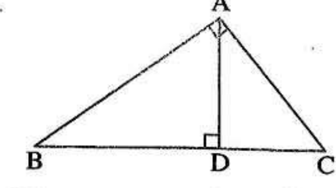
5 All the .... are similar.

(a) squares (b) triangles (c) rectangles (d) parallelograms

6 If Δ ABC ~ Δ XYZ , then m ($\angle$ Y) = m ($\angle$ ....)

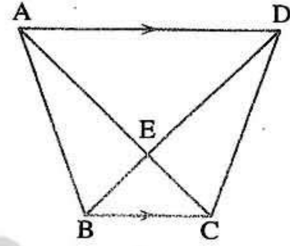
(a) A (b) B (c) C (d) X

2 Complete each of the following :



1. In the opposite figure
   AB × .... = BC × AD
2. In Δ ABC , if $(AC)^2 + (BC)^2 = (AB)^2$, then m (∠ ....) = 90°
3. If the point A ∈ the straight line L , then the projection of the point A on the straight line L is ....
4. The area of the triangle = $\frac{1}{2}$ × .... × the corresponding height.
5. The diagonals of an isosceles trapezium are .... in the length.

3 [a] In the opposite figure :



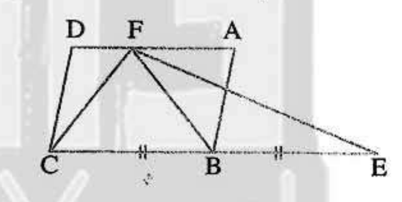
ABCD is a quadrilateral in which

, $\overline{AD}$ // $\overline{BC}$, $\overline{AC} \cap \overline{BD} = \{E\}$

Prove that : the area of Δ ABE = the area of Δ DCE

[b] The side lengths of one of two similar triangles are 3 cm. , 4 cm. , 5 cm. and the perimeter of the other triangle is 36 cm. Find the side lengths of the other triangle.

4 [a] In the opposite figure :

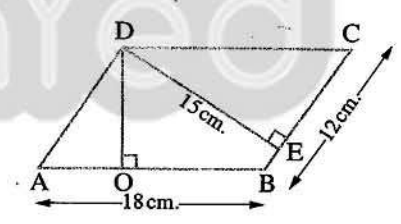


ABCD is a parallelogram , E ∈ $\overrightarrow{CB}$, where BC = BE

Prove that :

The area of Δ FCE = the area of parallelogram ABCD

[b] In the opposite figure :



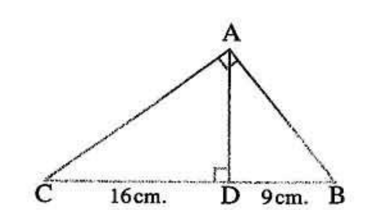
ABCD is a parallelogram in which :

AB = 18 cm. , DE = 15 cm. , and BC = 12 cm.

, $\overline{DE} \perp \overline{BC}$, $\overline{DO} \perp \overline{AB}$

Calculate the area of ▱ ABCD , and find the length of $\overline{DO}$

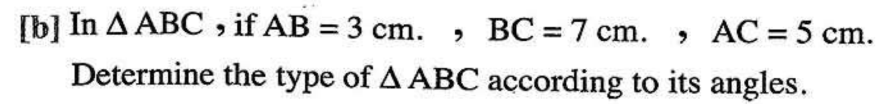
5 [a] In the opposite figure :



ABC is a right-angled triangle at A

, $\overline{AD} \perp \overline{BC}$, if BD = 9 cm. and DC = 16 cm.

Find : the lengths of $\overline{AB}$ and $\overline{AD}$



[b] In Δ ABC , if AB = 3 cm. , BC = 7 cm. , AC = 5 cm.

Determine the type of Δ ABC according to its angles.



El-Sharkia Governorate

Dep. of formal L. Schools



Answer the following questions :

1 Complete each of the following :

1 The median of a triangle divides its surface into ....

2 The area of a trapezium whose parallel base lengths are 10 cm. , 6 cm. and its height is 5 cm. is .... cm^2.

3 Area of parallelogram = ... × ....

4 The area of the rhombus of perimeter 20 cm. and height 3 cm. = ...

5 The area of a triangle is equal to .... the area of a parallelogram if they have a common base lying on one of two parallel straight lines including them.

2 Choose the correct answer :

1 ABC is a triangle in which $(AB)^2 > (AC)^2 + (BC)^2$, then $\angle$ C is ....

(a) acute. (b) right. (c) obtuse. (d) straight.

2 If $\overline{AB} \parallel \overleftrightarrow{XY}$, then the length of the projection of $\overline{AB}$ on $\overleftrightarrow{XY}$ .... length of $\overline{AB}$

(a) $<$ (b) $>$ (c) $=$ (d) $\geq$

3 A square of diagonal length 12 cm. , then its area = ... cm^2.

(a) 24 (b) 36 (c) 48 (d) 72

4 The two base angles of the isosceles trapezium are ....

(a) congruent. (b) complementary. (c) supplementary. (d) parallel.

5 The ratio between the lengths of corresponding sides of two similar triangles is 3 : 5 , if the perimeter of the greater triangle is 60 cm. , then the perimeter of the smaller triangle is ....

(a) 24 (b) 36 (c) 40 (d) 100

6 A triangle whose area is 15 cm^2 and its height is 3 cm. , then its base length = ... cm.

(a) 5 (b) 10 (c) 15 (d) 3

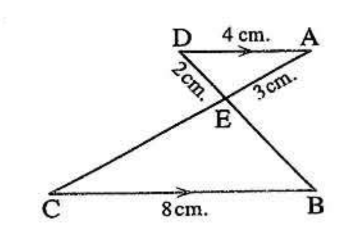
3 [a] In the opposite figure :

$\overline{AD} \parallel \overline{BC}$, AD = 4 cm. , BC = 8 cm.

, AE = 3 cm. and ED = 2 cm.

1 **Prove that :** Δ AED ~ Δ CEB

2 **Find :** The perimeter of Δ EBC



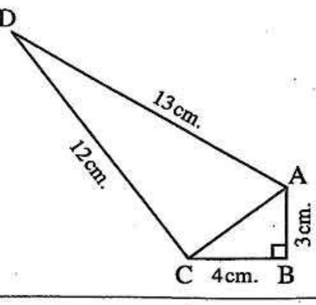
[b] In the opposite figure :

AB = 3 cm. , BC = 4 cm.

, AD = 13 cm. , CD = 12 cm.

, m (∠ B) = 90°

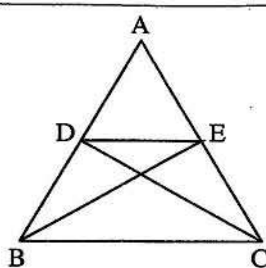
Prove that : m (∠ ACD) = 90°



4 **[a] In the opposite figure :**

If the area of Δ ACD = the area of Δ ABE

Prove that : $\overline{ED}$ // $\overline{BC}$



[b] In Δ ABC , if AB = 8 cm. , BC = 10 cm. and CA = 7 cm.

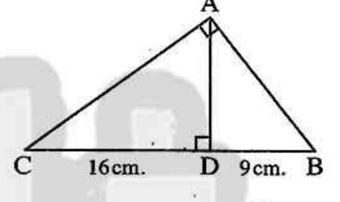
What is the type of Δ ABC according to its angles ?

5 **[a] In the opposite figure :**

ABC is a right-angled triangle at A

, $\overline{AD}$ ⊥ $\overline{BC}$, BD = 9 cm. , CD = 16 cm.

Find: The length of each of $\overline{AB}$, $\overline{AC}$, $\overline{AD}$

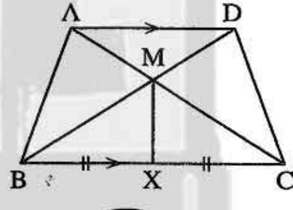


[b] In the opposite figure :

$\overline{AD}$ // $\overline{BC}$, X is the midpoint of $\overline{BC}$

Prove that :

The area of the figure ABXM = the area of the figure DCXM



10 El-Dakahlia Governorate

Directorate of Education
Maths Supervision



Answer the following questions :

1 **Choose the correct answer :**

1 The area of a rhombus whose diagonal lengths are 6 cm. and 10 cm. is …………… cm^2.

(a) 60 (b) 120 (c) 30 (d) 15

2 In Δ XYZ , if $(XZ)^2 = (XY)^2 - (ZY)^2$, then ∠ Z is …………… angle.

(a) an acute. (b) a straight. (c) an obtuse. (d) a right.

3 If the perimeter of a square is 20 cm. , then its area = …………… cm^2.

(a) 400 (b) 10 (c) 25 (d) 12.5

4 If Δ ABC ~ Δ XYZ , then m (∠ ACB) = m (∠ ……………)

(a) XYZ (b) YXZ (c) ZYX (d) XZY

[5] If the diameter length of a circle = 14 cm. , then its area = ... cm^2.

(a) 154 (b) 44 (c) 616 (d) 22

[6] In Δ ABC , m ($\angle$ B) = 90° , $\overline{BD} \perp \overline{AC}$, then $(AB)^2$ = AD × ....

(a) AC (b) CD (c) BC (d) AD

2 Complete each of the following :

[1] If the area of a square is 50 cm^2. , then its diagonal length = ...

[2] Two polygons are similar if the corresponding sides are ....

[3] If A $\in$ straight line L , then its projection on straight line L is ....

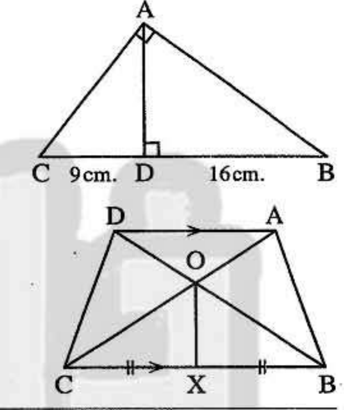
[4] ABCD is a parallelogram , if m ($\angle$ A) = 80° , then m ($\angle$ B) = ...

[5] If the perimeter of an equilateral triangle is 30 cm. and its height is 5 cm. , then its area = ... cm^2.

3 [a] In the opposite figure :

m ($\angle$ A) = 90° , $\overline{AD} \perp \overline{BC}$, CD = 9 cm. and DB = 16 cm.

Find : AC and AD



[b] In the opposite figure :

$\overline{DA} // \overline{CB}$, XB = XC

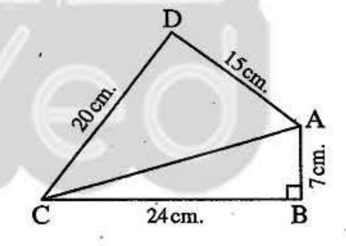
Prove that :

the area of the figure ABXO = the area of the figure DCXO

4 [a] In the opposite figure :

m ($\angle$ B) = 90° , AB = 7 cm. BC = 24 cm. and AD = 15 cm. , CD = 20 cm.

Prove that : m ($\angle$ D) = 90°



[b] In Δ ABC , AB = 5 cm. , BC = 8 cm. and AC = 10 cm.

What is the type of the triangle according to its angles ? (write steps)

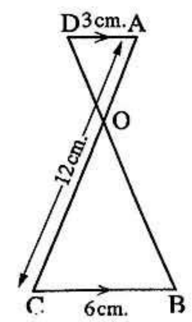
5 [a] A trapezium , the lengths of the two parallel bases are 4 cm. and 10 cm. , if its height is 5 cm. Calculate its middle base and its area.

[b] In the opposite figure :

$\overline{DA} // \overline{CB}$, AD = 3 cm. and BC = 6 cm. , AC = 12 cm.

[1] **Prove that :** Δ AOD ~ Δ COB

[2] **Find :** the length of $\overline{AO}$





Suez Governorate

Directorate of Education
Inspection of Mathematics



Answer the following questions :

1 Choose the correct answer :

1. ABCD is a parallelogram in which m (∠ A) = 70° , then m (∠ B) = ...
   (a) 70° (b) 110° (c) 180° (d) 540°

2. In Δ ABC , if $(AB)^2 > (BC)^2 + (AC)^2$, then angle C is ....
   (a) acute. (b) right. (c) obtuse. (d) straight.

3. **In the opposite figure :**
   m (∠ BAC) = 90° , $\overline{AD} \perp \overline{BC}$
   , DC = 9 cm. , DB = 16 cm.
   , then AD = ... cm.
   (a) 144 (b) 25 (c) 50 (d) 12

4. The area of the square whose diagonal length is 10 cm. = ...
   (a) 100 cm^2 (b) 50 cm^2 (c) 40 cm^2 (d) 20 cm^2

5. A trapezium whose lengths of two parallel bases are 6 cm. and 8 cm. , then the length of its middle base equals .... cm.
   (a) 48 (b) 24 (c) 14 (d) 7

6. The ratio between the lengths of two corresponding sides of two similar polygons is 3 : 5 , then the ratio between their perimeters is ....
   (a) 2 : 5 (b) 5 : 3 (c) 3 : 5 (d) 1 : 2

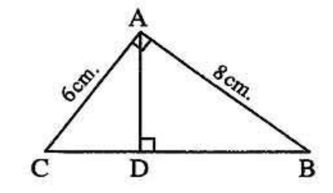
2 Complete each of the following :

1. The median of a triangle divides its surface into two triangular surfaces equals ....
2. In Δ ABC , if $(AC)^2 + (BC)^2 = (AB)^2$, then m (∠ ....) = 90°
3. All the regular polygons that have the same number of sides are ....
4. The area of rhombus is 24 cm^2 , if the length of one of its diagonals 8 cm. , then the length of the other diagonal is ....
5. If the point A ∈ the striaght line L , then the projection of the point A on the line L is ....

3 [a] In the opposite figure :

m (∠ CAB) = 90° , $\overline{AD} \perp \overline{BC}$
, AC = 6 cm. , AB = 8 cm.

Find : the length of the projection of $\overline{AB}$ on $\overleftrightarrow{BC}$

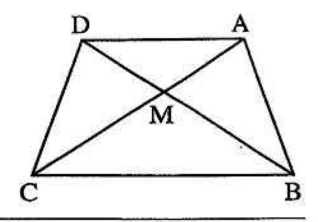


[b] In the opposite figure :

ABCD is a quadrilateral ,

the area of Δ AMB = the area of Δ DMC

Prove that : $\overline{AD} \parallel \overline{BC}$



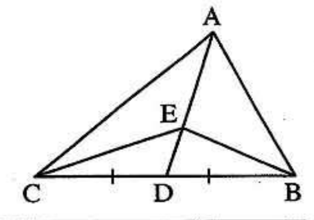
4 **[a]** Determine the type of the greatest angle in Δ ABC where AB = 9 cm. , BC = 10 cm. , AC = 12 cm.

[b] In the opposite figure :

$\overline{AD}$ is the median of Δ ABC , E ∈ $\overline{AD}$

Prove that :

The area of Δ ABE = the area of Δ ACE



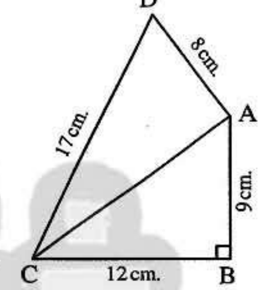
5 **[a] In the opposite figure :**

m (∠ B) = 90° , AB = 9 cm.

, BC = 12 cm. , AD = 8 cm.

, DC = 17 cm.

Prove that : m (∠ DAC) = 90°

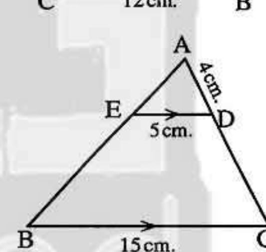


[b] In the opposite figure :

$\overline{ED} \parallel \overline{BC}$, AD = 4 cm.

, ED = 5 cm. , BC = 15 cm.

Find with proof : The length of $\overline{DC}$



12 Port Said Governorate

East Educational Directorate
mathematics Inspection



Answer the following questions :

1 **Choose the correct answer :**

1 In Δ ABC , if $(AB)^2 > (BC)^2 + (AC)^2$, then the angle C is ....

(a) acute. (b) right. (c) obtuse. (d) straight.

2 If the lengths of the diagonals of a rhombus are 6 cm. and 8 cm. , then its perimeter = ... cm.

(a) 24 (b) 28 (c) 14 (d) 20

3 If ABCD is a parallelogram of area 20 cm^2 and E ∈ $\overline{AD}$, then the area of Δ EBC = ... cm^2

(a) 10 (b) 5 (c) 20 (d) 40

4 If the projection of a line segment on a straight line is a point , then the line segment .... straight line.

(a) // (b) $\perp$ (c) $\equiv$ (d) $\subset$

5 The two triangles drawn on a common base and their vertices located on straight line parallel to the base are ....

(a) congruent. (b) similar.
(c) equal in perimeter. (d) equal in area.

6 ABCD is a parallelogram in which , AB = 5 cm. , BC = 10 cm. and its smaller height is 4 cm. , then its greater height = ... cm.

(a) 2 (b) 4 (c) 8 (d) 10

2 Complete each of the following :

1 If $\angle$ A complements $\angle$ B and $\angle$ B supplements $\angle$ C , if m ($\angle$ A) = 30° , then m ($\angle$ C) = ...°

2 In Δ ABC , if $(AB)^2 = (BC)^2 + (AC)^2$, then m ($\angle$ ....) = 90°

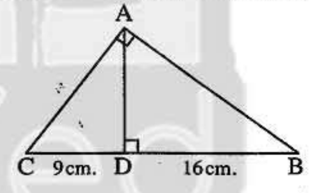
3 If two polygons are similar and the ratio between the lengths of two corresponding sides is 2 : 5 , then the ratio between their perimeters is ....

4 A trapezium whose base lengths are 4 cm. and 6 cm. , then the length of its middle base = ... cm.

5 The rectangle is a parallelogram in which one of its angles is ....

3 [a] In the opposite figure :

Find : the length of $\overline{AB}$, $\overline{AC}$ and $\overline{AD}$



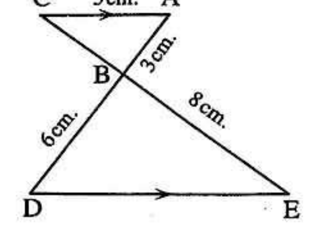
[b] ABCD is a trapezium in which $\overline{AD}$ // $\overline{BC}$, if BC = 2 AD = 20 cm. and its area = 180 cm^2. Find its height.

4 [a] In the opposite figure :

$\overline{AC}$ // $\overline{ED}$, AB = 3 cm. , BD = 6 cm.
, AC = 5 cm. , BE = 8 cm.

Prove that : Δ ABC ~ Δ DBE

, then find : the length of $\overline{ED}$, $\overline{BC}$

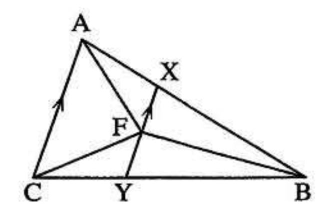


[b] In the opposite figure :

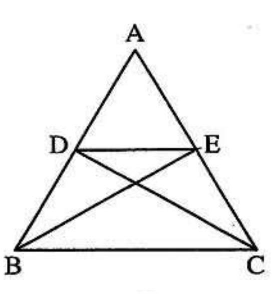
$\overline{AC}$ // $\overline{XY}$ and F is the midpoint of $\overline{XY}$

Prove that :

The area of Δ ABF = the area of Δ CBF



5 **[a] In the opposite figure :**



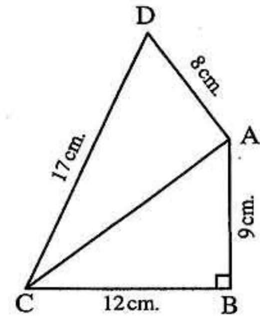
ABC is a triangle in which :

$D \in \overline{AB}$ and $E \in \overline{AC}$

, such that the area of Δ ABE = the area of Δ ACD

Prove that : $\overline{DE} // \overline{BC}$

[b] In the opposite figure :



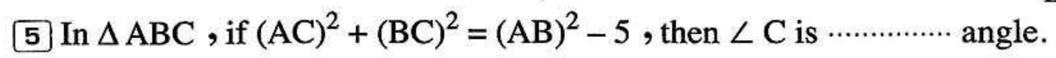
ABCD is a quadrilateral

, m ($\angle$ B) = 90° , AB = 9 cm.

, BC = 12 cm. , CD = 17 cm.

and DA = 8 cm.

Prove that : m ($\angle$ DAC) = 90°



Damietta Inspection of Mathematic
Official Language Schools

Answer the following questions :

1 **Choose the correct answer :**

1. If the lengths of two adjacent sides in a parallelogram are 8 cm. and 10 cm. and the smaller height is 5 cm. , then its area is .... cm^2.
   (a) 40 (b) 50 (c) 80 (d) 20
2. If the area of a square is 72 cm^2. , then its diagonal length = ... cm.
   (a) 6 (b) 8 (c) 12 (d) 36
3. All .... are similar.
   (a) squares (b) triangles (c) rectangles (d) parallelograms
4. **In the opposite figure :**

   The number of the triangles = ...
   (a) 3 (b) 4
   (c) 5 (d) 6
5. In Δ ABC , if $(AC)^2 + (BC)^2 = (AB)^2 - 5$, then $\angle$ C is .... angle.
   (a) acute (b) right (c) obtuse (d) straight
6. If the projection of a line segment on a straight line is a point , then the line segment .... straight line.
   (a) // (b) $\perp$ (c) $\equiv$ (d) $\subset$

2 Complete each of the following :

1 The area of a triangle is equal to .... the area of the parallelogram if they have a common base lying on one of two parallel sraight lines including them.

2 If Δ ABC $\sim$ Δ DEH where m ($\angle$ A) = 70° , m ($\angle$ E) = 50° , then m ($\angle$ C) = ...°

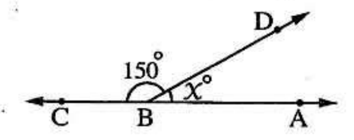
3 ABCD is a parallelogram in which m ($\angle$ A) + m ($\angle$ C) = 140° , then ($\angle$ B) = ...°

4 The length of the projection of a line segment parallel to a given straight line on this straight line is .... the length of the original line segment.

5 **In the opposite figure :**

If B $\in \overleftrightarrow{AC}$

, then x = ...°



3 **[a]** Find the height of a trapezium with area of 450 cm². and the two parallel bases lengths are 24 cm. and 12 cm.

[b] In the opposite figure :

$\overline{AD} \parallel \overline{BC}$, $\overline{AC} \cap \overline{BD} = \{M\}$

and H is the midpoint of $\overline{BC}$



Prove that :

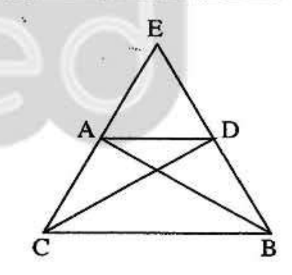
1 The area of Δ AMB = the area of Δ DMC

2 The area of the figure ABHM = The area of the figure DCHM

4 **[a] In the opposite figure :**

The area of Δ EAB = the area of Δ EDC

Prove that : $\overline{AD} \parallel \overline{BC}$



[b] Determine the type of Δ ABC according to its angles if

AB = 7 cm. , BC = 3 cm. , AC = 6 cm.

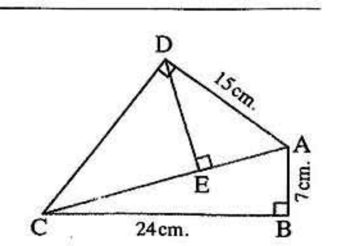
5 **[a] In the opposite figure :**

m ($\angle$ ADC) = m ($\angle$ ABC) = 90° , AB = 7 cm.

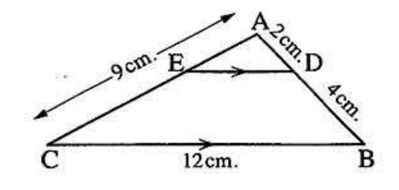
, BC = 24 cm. , AD = 15 cm.

Find : 1 The length of $\overline{AC}$ and $\overline{DC}$

2 The length of the projection of $\overline{AD}$ on $\overleftrightarrow{AC}$



[b] In the opposite figure :



ABC is a triangle , AD = 2 cm. , DB = 4 cm.

, BC = 12 cm. , AC = 9 cm. and $\overline{DE} \parallel \overline{BC}$

1 **Prove that :** $\Delta ADE \sim \Delta ABC$

2 **Find :** The length of $\overline{DE}$ and $\overline{AE}$

14 Beni Suef Governorate

Directorate of official Language Schools
Education administration



Answer the following questions :

1 Choose the correct answer :

1 If the lengths of two adjacent sides of a parallelogram are 8 cm. and 10 cm. and its greater height is 5 cm. , then its area equals .... cm^2.

(a) 18 (b) 40 (c) 50 (d) 80

2 The median of the triangle divides its surface into two triangles ....

(a) congruent. (b) equal in area. (c) isosceles. (d) right-angled.

3 If $\overline{AB} \parallel \overleftrightarrow{XY}$, then the length of the projection of $\overline{AB}$ on $\overleftrightarrow{XY}$ .... the length of $\overline{AB}$

(a) < (b) > (c) = (d) ≤

4 In ΔABC , $(AC)^2 = (BC)^2 - (AB)^2$, then $\angle A$ is ....

(a) acute. (b) right. (c) obtuse. (d) straight.

5 Any triangle has at least two .... angles.

(a) acute (b) obtuse (c) right (d) reflex

6 The number of axes of symmetry of an isosceles triangle = ...

(a) zero (b) 1 (c) 2 (d) 3

2 Complete each of the following :

1 If two triangles are equal in area and drawn on the same base and on one side of it , then their vertices ....

2 If two polygons are similar , then the corresponding .... are equal in measure.

3 A triangle whose side lengths are 9 cm. , 12 cm. and 16 cm. , then its type according to its angles is ....

4 In ΔXYZ , if $(XZ)^2 + (YZ)^2 > (XY)^2$, then the type of the angle Z is ....

5 If a straight line intersects two parallel straight lines , then every two alternate angles are ....

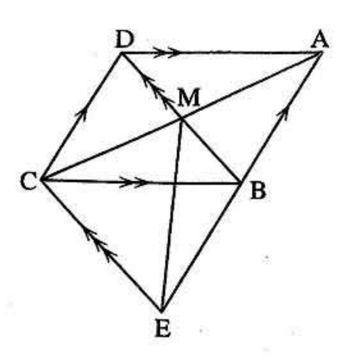
3 **[a] In the opposite figure :**

ABCD and BECD are two parallelograms

where $\overline{AC} \cap \overline{BD} = \{M\}$

Prove that :

The area of Δ ABD = the area of Δ MEC



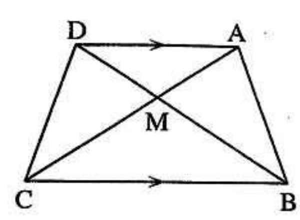
[b] In the opposite figure :

ABCD is a quadrilateral , $\overline{AD}$ // $\overline{BC}$

and $\overline{AC} \cap \overline{BD} = \{M\}$

Prove that :

The area of Δ ABM = the area of Δ DCM



4 **[a]** Two pieces of land have equal areas , one of them has the shape of a rhombus whose diagonals lengths are 18 m. and 24 m. , and the other one has the shape of a trapzium whose height is 12 m. Find the length of its middle base.

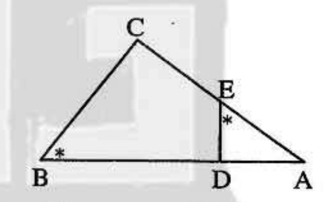
[b] In the opposite figure :

Δ ABC , D $\in \overline{AB}$, E $\in \overline{AC}$

, AE = 4 cm. , EC = 5 cm.

, BC = 7.5 cm. , AD = 3 cm.

and m ($\angle$ AED) = m ($\angle$ B)





1 **Prove that :** Δ AED ~ Δ ABC

2 **Find the length of :** $\overline{BD}$

5 **In the opposite figure :**

$\overline{DE} \perp \overline{AB}$, m ($\angle$ ABC) = 90°

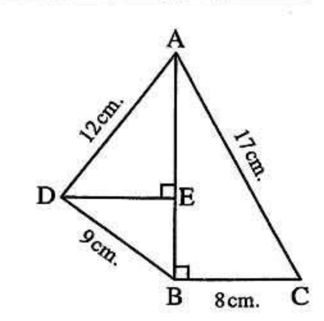
, AD = 12 cm. , AC = 17 cm.

, BC = 8 cm. , DB = 9 cm.

1 **Prove that :** m ($\angle$ ADB) = 90°

2 **Find :** the length of $\overline{DE}$

3 **Find :** the length of the projection of $\overline{AD}$ on $\overleftrightarrow{AB}$



15 Qena Governorate

Qena Directorate
Governmental Language Schools Department



Answer the following questions :

1 Choose the correct answer :

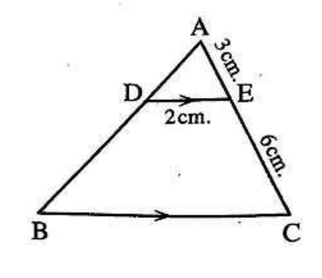
1. If ABC is a right-angled triangle at A and $\overline{AD} \perp \overline{BC}$, then $(AC)^2 =$ ....
   (a) AB × BC (b) BD × DC (c) BD × BC (d) CD × BC
2. If Δ ABC ~ Δ XYZ and AB : XY = 2 : 3 , the perimeter of Δ ABC = 14 cm. , then the perimeter of Δ XYZ = ... cm.
   (a) 14 (b) 21 (c) 7 (d) 30
3. If the area of a square is 50 cm^2 , then its diagonal length = ... cm.
   (a) 10 (b) 5 (c) 15 (d) 25
4. The length of the projection of a line segment .... the length of the line segment.
   (a) > (b) = (c) ≤ (d) ≥
5. If ABCD is a parallelogram in which AB = 7 cm. , BC = 8 cm. and its smaller height is 5 cm. , then its area = ... cm^2
   (a) 28 (b) 40 (c) 35 (d) 56
6. The number of axes of symmetry of the isosceles triangle is ....
   (a) 0 (b) 1 (c) 2 (d) 4

2 Complete each of the following :

1. If two triangles drawn on a common base and their vertices on a straight line parallel to this base , then they are ....
2. If two polygons are similar to a third polygon , then they are ....
3. If area of a trapezium is 24 cm^2 and its height is 4 cm. , then the length of the middle base is .... cm.
4. In the triangle ABC , if $(AC)^2 - (BC)^2 > (AB)^2$, then ∠ B is .... angle.
5. Two triangles are similar if their corresponding side lengths are ....

3 **[a]** A rhombus with diagonal lengths are 12 cm. and 10 cm. and its height 8 cm. find its perimeter.

[b] In the opposite figure :



ABC is a triangle in which $D \in \overline{AB}$

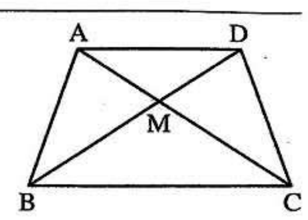
, $E \in \overline{AC}$, where $\overline{DE} // \overline{BC}$

, AE = 3 cm. , EC = 6 cm. , DE = 2 cm.

[1] **Prove that :** $\Delta ADE \sim \Delta ABC$

[2] **Find :** The length of $\overline{BC}$

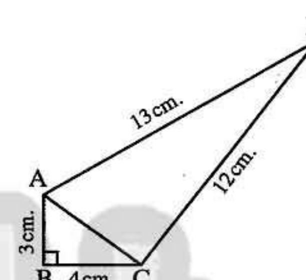
4 **[a] In the opposite figure :**



If the area of Δ AMB = the area of Δ CMD

Prove that : $\overline{AD} // \overline{BC}$

[b] In the opposite figure :



ABCD is a quadrilateral in which m ($\angle$ B) = 90°

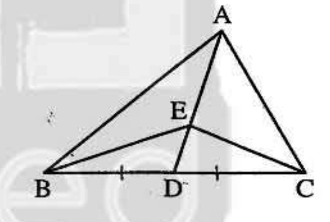
, AB = 3 cm. , BC = 4 cm.

, CD = 12 cm. , AD = 13 cm.

[1] **Prove that :** m ($\angle$ ACD) = 90°

[2] **Find :** the area of the figure ABCD

5 **[a] In the opposite figure :**

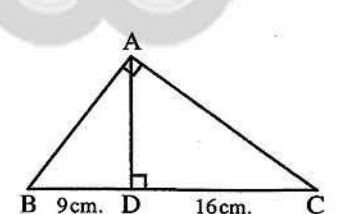


ABC is a triangle in which :

D is the midpoint of $\overline{BC}$, $E \in \overline{AD}$

Prove that : the area of Δ ABE = the area of Δ ACE

[b] In the opposite figure :



ABC is a right-angled triangle at A

, $\overline{AD} \perp \overline{BC}$, BD = 9 cm.

, CD = 16 cm.

Find : [1] The perimeter of the triangle ABC

[2] The area of the triangle ABC

Some Schools Examinations on Geometry

1 Cairo Governorate

El-Nozha Educational Zone
Math's Inspection



Answer the following questions :

1 Complete each of the following :

(1) In Δ ABC , if $(AB)^2 + (BC)^2 < (AC)^2$, then $\angle$ B is ....

(2) The two triangles are similar if the corresponding angles are ....

(3) **From the opposite figure :**

(a) The projection of $\overline{CD}$ on $\overleftrightarrow{AB}$ is ....

(b) The projection of $\overline{BC}$ on $\overleftrightarrow{AB}$ is ....

(4) A rhombus whose diagonal lengths are 6 cm. , 10 cm. has area .... cm^2.



2 Choose the correct answer :

(1) A square of diagonal length 12 cm. , then its area = ... cm^2.

(a) 24 (b) 36 (c) 48 (d) 72

(2) In Δ ABC if $(AC)^2 = (AB)^2 + (BC)^2$, then $\angle$ .... is right.

(a) A (b) B (c) C (d) otherwise

(3) ABC is a triangle where AB = 2 cm. , BC = 6 cm. and CA = 5 cm.
, then m ($\angle$ A) .... 90°

(a) < (b) > (c) = (d) ≥

(4) If Δ ABC ~ Δ XYZ , m ($\angle$ B) = 50° , then m ($\angle$ Y) = ...

(a) 30° (b) 40° (c) 50° (d) 60°

(5) If the ratio between the length of two corresponding sides in two similar triangles is equal to 1 , then the two triangles are ....

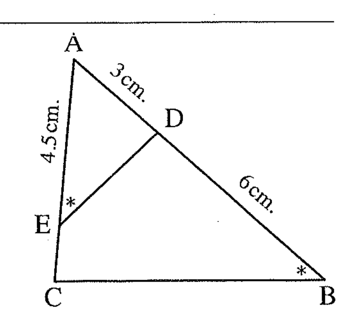
(a) congruent. (b) different. (c) parallel. (d) otherwise.

(6) * If the lengths of two adjacent sides of a parallelogram are 8 cm. and 10 cm. and its greater height is 5 cm. , then its area = ... cm^2.

(a) 80 (b) 50 (c) 40 (d) 18

---

3 [a] In the opposite figure :

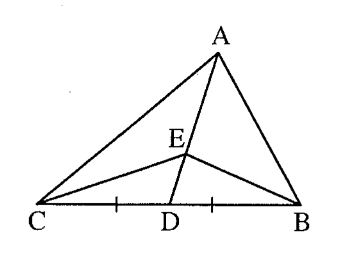


m ($\angle$ AED) = m ($\angle$ B) , AD = 3 cm.
, AE = 4.5 cm. and BD = 6 cm.

(1) **Prove that :** Δ ADE ~ Δ ACB

(2) **Find :** The length of $\overline{EC}$

[b] ✻ In the opposite figure :



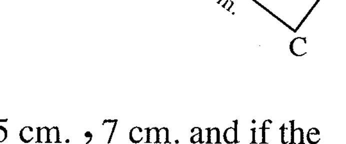
ABC is a triangle with a median $\overline{AD}$

, E $\in \overline{AD}$, draw $\overline{BE}$ and $\overline{CE}$

Prove that : The area of Δ ABE = the area of Δ ACE

---

4 **[a] In the opposite figure :**



ABCD is a quadrilateral in which

AB = 8 cm. , BC = 9 cm. and CD = 12 cm.

, AD = 17 cm. and $\overline{DB} \perp \overline{AB}$

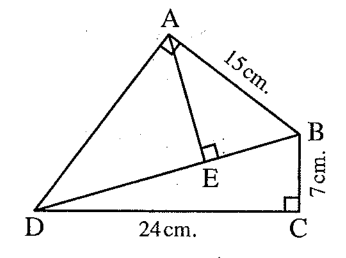
① **Find :** The length of $\overline{BD}$

② **Prove that :** m ($\angle$ C) = 90°

[b] If the lengths of the two parallel bases of a trapezium are 5 cm. , 7 cm. and if the length of its height 4 cm. , find its area

---

5 **In the opposite figure :**

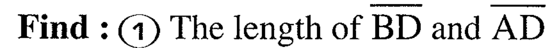


ABCD is a quadrilateral , where m ($\angle$ BCD) = m ($\angle$ BAD) = 90°

, $\overline{AE} \perp \overline{BD}$, BC = 7 cm. , CD = 24 cm. and AB = 15 cm.

Find : ① The length of $\overline{BD}$ and $\overline{AD}$

② The length of the projection of $\overline{AB}$ on $\overleftrightarrow{BD}$



2 Cairo Governorate

Abdine Educational Directorate
Sahara Language Schools



Answer the following questions :

1 **Choose the correct answer :**

① The length of the two adjacent sides in a parallelogram are 7 cm. , 5 cm. and the length of its smallest height is 4 cm.
, then the area of the parallelogram equals .... cm^2

(a) 35 (b) 25 (c) 28 (d) 49

② If the ratio of enlargement between two similar triangles equals ....
, then the two triangles are congruent.

(a) 1 (b) 2 (c) 0.5 (d) 0.25

③ If Δ ABC in which $(AB)^2 + (BC)^2 < (AC)^2$, then ($\angle$ B) is ....

(a) acute. (b) right. (c) reflex. (d) obtuse.

(4) If the projection of a line segment on a straight line is a point , then the line segment .... the straight line.

(a) // (b) ⊥ (c) ≡ (d) ⊂

(5) If Δ ABC ~ Δ DEO , AB = $\frac{1}{3}$ DE , then the perimeter of Δ ABC equals .... the perimeter of Δ DEO

(a) $\frac{1}{3}$ (b) $\frac{1}{2}$ (c) 3 (d) 9

(6) ✻ The ratio between the area of the parallelogram and the area of the triangle whose base is common and are included between two parallel straight lines = ...

(a) 1 : 2 (b) 1 : 3 (c) 2 : 1 (d) 2 : 3

---

2 Complete the following questions :

(1) If Δ ABC ~ Δ XYZ , m (∠ A) + m (∠ B) = 60° , then m (∠ Z) = ...

(2) The area of the trapezium whose parallel bases 6 cm. , 10 cm. and height 5 cm. equals ....

(3) The two polygons are similar to a third are ....

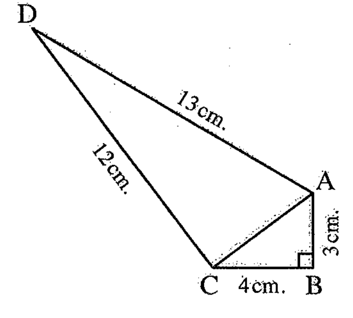
(4) The area of rhombus whose perimeter is 20 cm. and height 4 cm. = ...

(5) The projection of a point which belong to a straight line on this line is ....

---

3 [a] The ratio between the length of corresponding sides of two similar triangle is 3 : 5 and if the perimeter of the greater is 60 cm. , find the perimeter of the smaller triangles.

[b] In the opposite figure :



AB = 3 cm. , BC = 4 cm. , AD = 13 cm.

, CD = 12 cm. , m (∠ B) = 90°

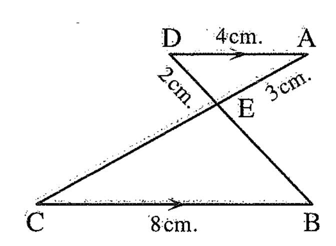
(1) **Find :** The length of : $\overline{AC}$

(2) **Prove that :** m (∠ ACD) = 90°

---

4 [a] Δ ABC where AB = 6 cm. , BC = 8 cm. , AC = 4 cm. , determine the type of the angle BAC

[b] In the opposite figure :



$\overline{AD}$ // $\overline{BC}$, AD = 4 cm. , AE = 3 cm.

, DE = 2 cm. , BC = 8 cm.

(1) **Prove that :** Δ AED ~ Δ CED

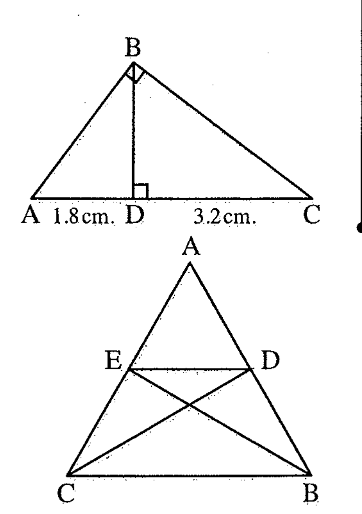
(2) **Find :** The perimeter of Δ EBC

5 **[a] In the opposite figure :**

m (∠ ABC) = 90° , $\overline{BD} \perp \overline{AC}$

, AD = 1.8 cm. , DC = 3.2 cm.

Find : The length of each : $\overline{BD}$, $\overline{AB}$



[b] ✻ In the opposite figure :

ABC is a triangle in which

D ∈ $\overline{AB}$ and E ∈ $\overline{AC}$

such that the area of Δ ABE = the area of Δ ACD

Prove that : $\overline{DE}$ // $\overline{BC}$

3 Cairo Governorate

Rod El-Farag Educational Zone
St. Mary's School



Answer the following questions :

1 **Choose the correct answer between brackets :**

(1) The length of the base of a triangle whose area 36 cm^2 and height 8 cm. is .... cm.

(a) 6 (b) 9 (c) 18 (d) 20

(2) If $\overline{AB}$ // $\overleftrightarrow{XY}$, then the length of the projection of $\overline{AB}$ on $\overleftrightarrow{XY}$ .... length of $\overline{AB}$

(a) < (b) > (c) = (d) ≥

(3) The area of the trapezium whose middle bases 7 cm. , and height 6 cm. = ... cm^2

(a) 21 (b) 42 (c) 40 (d) 13

(4) If the area of a parallelogram is 80 cm^2 and one of its bases length 10 cm.
, then the length of the corresponding height of this base = ... cm.

(a) 8 (b) 6 (c) 7 (d) 20

(5) Δ ABC in which AB = 4 cm. , BC = 6 cm. , AC = 8 cm.
, then m (∠ B) .... 90°

(a) > (b) < (c) = (d) twice

(6) ✻ The length of the base of a triangle whose area 30 cm^2 and height 6 cm. is .... cm.

(a) 5 (b) 10 (c) 15 (d) 20

---

2 **Complete each of the following :**

(1) The two polygons are similar if the corresponding sides .... and their corresponding angles ....

(2) The area of the rhombus whose diagonals 6 cm. , 8 cm. equals .... cm^2

(3) The diagonal of a square whose area 50 cm^2 equals .... cm.

④ If two polygons are similar and the ratio between the lengths of two corresponding side is 1 : 3 and the perimeter of smaller polygons is 12 cm. , then the perimeter of the greater polygon is ....

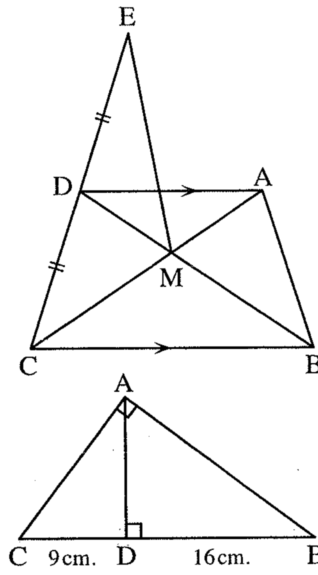
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3 [a] ✻ **In the opposite figure :**

$\overline{AD} // \overline{BC}$ and $\overline{AC} \cap \overline{BD} = \{M\}$

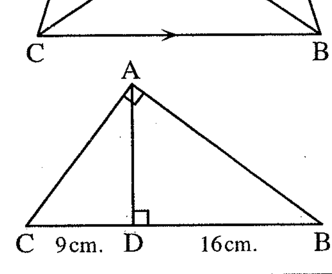
, D is the midpoint of $\overline{EC}$

Prove that : The area of Δ MDE = the area of Δ AMB



[b] In the opposite figure :

Find : The length of $\overline{AB}$, $\overline{AC}$, and $\overline{AD}$



---

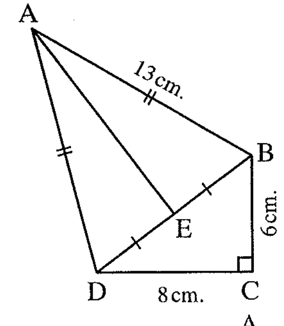
4 [a] **In the opposite figure :**

ABCD is a quadrilateral in which m (∠ C) = 90°

AB = AD = 13 cm. , BC = 6 cm.

, CD = 8 cm. , E is midpoint of $\overline{BD}$

Find : The area of the shape ABCD



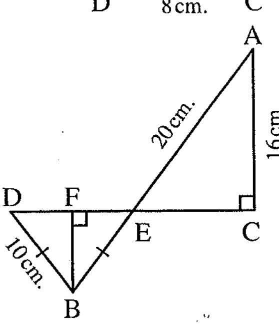
[b] In the opposite figure :

$\overline{AB} \cap \overline{CD} = \{E\}$, E is the midpoint of $\overline{CD}$

, AC = 16 cm. , AE = 20 cm.

, BD = BE = 10 cm.

Find : The length of the projection of $\overline{AB}$ on $\overleftrightarrow{CD}$



---

5 [a] The length of the middle base of a trapezium is 30 cm. and the ratio between the length of its two parallel bases is 2 : 3

Find the length of each of them and if its height = 24 cm. , find its area.

[b] In the opposite figure :

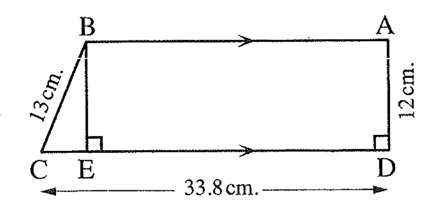
ABCD is a trapezium in which $\overline{AB} // \overline{DC}$, $\overline{AD} \perp \overline{DC}$

, AD = 12 cm. , BC = 13 cm. , DC = 33.8 cm. , $\overline{BE} \perp \overline{DC}$

① **Find :** The length of $\overline{CE}$, $\overline{AB}$, $\overline{DB}$

② **Find :** The length of the projection of $\overline{DC}$ on $\overleftrightarrow{AB}$

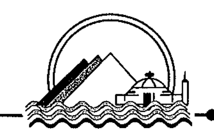
③ **Prove that :** m (∠ DBC) = 90°





Giza Governorate

El-Haram Directorate
Al-Omran Language School



Answer the following questions :

1 Choose the correct answer :

① In Δ ABC , if $(AB)^2 > (BC)^2 + (AC)^2$, then angle C is ....

(a) acute. (b) right. (c) obtuse. (d) straight.

② If $\overline{AB} \mathbin{//} \overline{XY}$, then the length of the projection of $\overline{AB}$ on $\overline{XY}$ .... the length of $\overline{AB}$

(a) > (b) ≤ (c) = (d) <

③ A rhombus whose diagonal lengths 12 cm. , 9 cm. , then its area = ... cm^2

(a) 18 (b) 54 (c) 45 (d) 108

④ Area of the trapezium whose base lengths are 6 cm. , 8 cm. and its height 10 cm. = ... cm^2

(a) 140 (b) 480 (c) 70 (d) 120

⑤ ABC is a triangle in which $(AB)^2 = (BC)^2 + (AC)^2$ and m ($\angle$ B) = 40° , then m ($\angle$ A) = ...

(a) 40° (b) 50° (c) 90° (d) 130°

⑥ * The median of a triangle divides its surface into two ....

(a) congruent triangles. (b) triangles equal in area.

(c) isosceles triangle. (d) right-angled triangle.

---

2 Complete each of the following :

① The ratio between the length of two corresponding sides of two similar polygon is 3 : 5 , then the ratio between their perimeter = ...

② If $\overline{AD} \perp \overline{BC}$, then the projection of $\overline{AD}$ on $\overleftrightarrow{BC}$ is ....

③ A square of diagonal length 12 cm. , then its area = ... cm^2

④ A triangle whose side lengths 6 cm. , 8 cm. , 11 cm. , then its type according to its angle is ....

⑤ If Δ ABC ~ Δ DEF and m ($\angle$ B) + m ($\angle$ C) = 70° , then m ($\angle$ D) = ...°

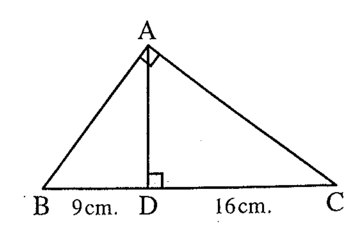
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3 [a] In the opposite figure :

In Δ ABC , BD = 9 cm.

, DC = 16 cm.

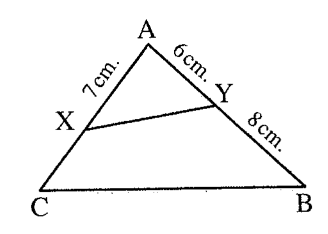
Find : Lengths of each of : $\overline{AD}$, $\overline{AB}$, $\overline{AC}$



[b] ABCD is trapezium in which $\overline{AD} // \overline{BC}$, if BC = 2 AD = 20 cm. and its area = 180 cm^2.
, find the length of its height.

---

4 **[a] In the opposite figure :**



If Δ AXY ~ Δ ABC , AX = 7 cm. , AY = 6 cm. , YB = 8 cm.

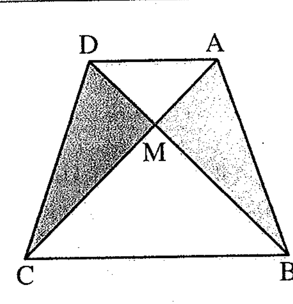
(1) **Find :** The length of $\overline{XC}$

(2) **Find :** $\frac{XY}{BC}$

[b] Δ EFD ~ Δ ABC , AB = 4 cm. , BC = 5 cm. , AC = 6 cm.
, if the perimeter of Δ EFD = 60 cm. , find the length of sides Δ EFD

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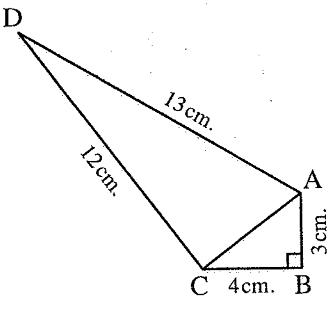
5 **[a] * In the opposite figure :**



ABCD is a quadrilateral
, its diagonals intersect at M
and the area of Δ ABM = the area of Δ DCM
Prove that : $\overline{AD} // \overline{BC}$



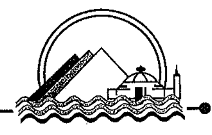
[b] In the opposite figure :



AB = 3 cm. , BC = 4 cm.
, AD = 13 cm.
, CD = 12 cm.
and m ($\angle$ ABC) = 90°
Prove that : m ($\angle$ ACD) = 90°

5 Giza Governorate

6th October Directorate
Om El-Mo'mneen Language School



Answer the following questions :

1 **Complete each of the following :**

(1) The ratio between the lengths of corresponding sides of two similar triangle is 3 : 5 if the perimeter of the greater triangle is 60 cm. , then the perimeter of the smaller triangle is ....

(2) The triangle whose side lengths are 5 cm. , 8 cm. , 7 cm. is .... angled triangle.

(3) If the length of middle base of a trapezium is 15 cm. and its area equal 75 cm^2.
, then the length of its height = ... cm.

(4) In ΔABC , if $(AB)^2 = (AC)^2 - (BC)^2$, then m ($\angle$ B) = ... °

(5) The projection of a straight line on a straight line .... is a point of intersection of two straight lines.

2 Choose the correct answer :

(1) The area of the triangle whose side length are 3 cm. , 4 cm. , 5 cm. is .... cm^2

(a) 6 (b) 8 (c) 12 (d) 60

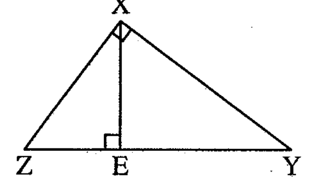
(2) If Δ ABC is an obtuse-angled triangle at A , AB = 5 cm. , BC = 8 cm. , then AC = ... cm.

(a) 5 (b) 7 (c) 8 (d) 9

(3) If the ratio of enlargement between two triangle equals .... , then the two triangles are congruent.

(a) 0.5 (b) 1 (c) 2 (d) 4

(4) **In the opposite figure :**



EY × EZ = ...

(a) $(XY)^2$ (b) $(XZ)^2$

(c) $(XE)^2$ (d) $(YZ)^2$

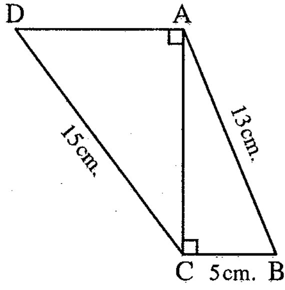
(5) The length of the projection of a line segment on a straight line parallel to it .... the length of the main line segment.

(a) ≥ (b) ≤ (c) > (d) =

(6) * The area of the triangle is .... the area of the parallelogram which has a common base with it and its vertex lies on the straight line parallel to this base.

(a) equal to (b) half (c) twice (d) quarter

3 [a] In the opposite figure :



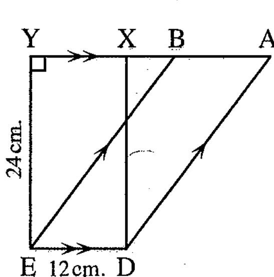
$\overline{AD} // \overline{BC}$, AB = 13 cm. , BC = 5 cm.

, CD = 15 cm. , m (∠ ACB) = m (∠ DAC) = 90°

Find : (1) The length of the projection of $\overline{AB}$ on $\overleftrightarrow{AC}$

(2) The length of the projection of $\overline{CD}$ on $\overleftrightarrow{AD}$

[b] * In the opposite figure :



$\overleftrightarrow{AB} // \overleftrightarrow{DE}$, X and Y ∈ $\overleftrightarrow{AB}$

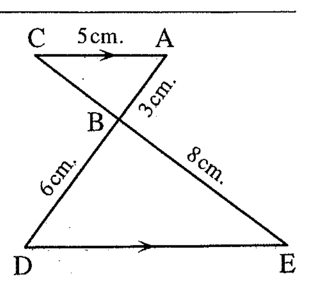
, XDEY is a rectangle and $\overline{AD} // \overline{BE}$

(1) **Find :** The area of the figure ABED

(2) If AD = 30 cm.

, find the length of the perpendicular from B to $\overline{AD}$

4 [a] In the opposite figure :



$\overline{AC} // \overline{ED}$, AB = 3 cm. , BD = 6 cm.

, AC = 5 cm. , BE = 8 cm.

Prove that : Δ ABC ~ Δ DBE

, then find the length of : $\overline{ED}$, $\overline{BC}$

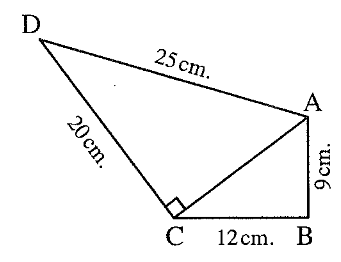
[b] In the opposite figure :

m (∠ ACD) = 90° , AB = 9 cm.

, BC = 12 cm. , AD = 25 cm.

, DC = 20 cm.

Prove that : m (∠ ABC) = 90°



---

5 In the opposite figure :

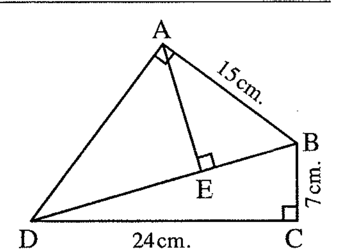
ABCD is a quadrilateral where : m (∠ BCD) = m (∠ BAD) = 90°

$\overline{AE} \perp \overline{BD}$, BC = 7 cm. , CD = 24 cm. and AB = 15 cm.

Find : (1) The length of each of $\overline{BD}$ and $\overline{AD}$

(2) The length of the projection of $\overline{AB}$ on $\overleftrightarrow{BD}$

(3) The length of the projection of $\overline{AD}$ on $\overleftrightarrow{AE}$



6 Alexandria Governorate

El-Montaza Educational Zone
victory college for boys



Answer the following questions :

1 Complete each of the following :

(1) Δ ABC is a right-angled triangle at B , AB = 6 cm. , BC = 8 cm. , then AC = ... cm.

(2) If $\overline{AD} \perp \overleftrightarrow{BC}$, then the projection of $\overline{AD}$ on $\overleftrightarrow{CB}$ is ....

(3) In Δ ABC : If $(AC)^2 + (BC)^2 = (AB)^2$, then m (∠ ....) = 90°

(4) The two triangles are similar if their corresponding angles are .... in measure.

(5) The rectangle is parallelogram in which one of its angles is ....

---

2 Choose the correct answer :

(1) The two angles of measures 130° and 50° are ....

(a) complementary. (b) supplementary. (c) adjacent. (d) reflex.

(2) In Δ ABC : if $(AB)^2 > (BC)^2 + (AC)^2$, then angle C is ....

(a) acute. (b) right. (c) obtuse. (d) straight.

(3) If $\overline{AB} \parallel \overleftrightarrow{XY}$, then the length of the projection of $\overline{AB}$ on $\overleftrightarrow{XY}$ .... the length of $\overline{AB}$.

(a) = (b) < (c) > (d) ≤

(4) Δ ABC in which $(AB)^2 = (AC)^2 + (BC)^2$, m (∠ B) = 40° , then m (∠ A) = ...

(a) 130° (b) 50° (c) 90° (d) 40°

(5) If the ratio of enlargement between two similar triangles equals 1 , then the two triangles are ....

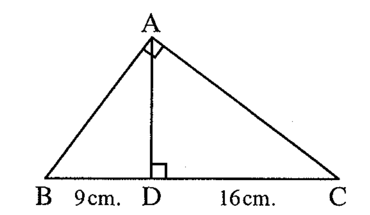
(a) congruent. (b) different. (c) right-angle. (d) coincide.

⑥ ✻ The area of a right-angled triangle in which the lengths of the sides of the right angle are 6 cm. and 9 cm. equals ....

(a) 54 cm^2 (b) 60 cm^2 (c) 27 cm^2 (d) 15 cm^2

3 **[a]** Determine the type of angle C in Δ ABC in which AB = 7 cm. , BC = 3 cm. , and AC = 5 cm.

[b] In the opposite figure :



Δ ABC is right-angled triangle at A , in which $\overline{AD} \perp \overline{BC}$, BD = 9 cm. and CD = 16 cm.

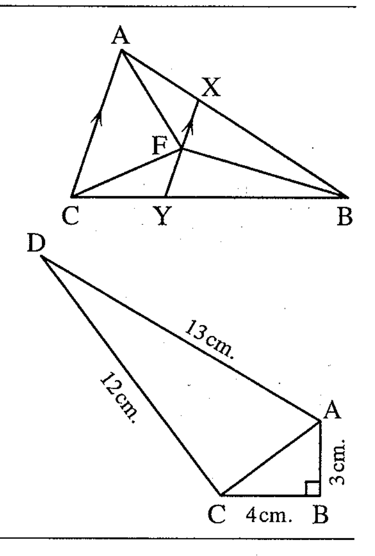
Find : The length of each of : $\overline{AB}$, $\overline{AC}$ and $\overline{AD}$

4 **[a] ✻ In the opposite figure :**

$\overline{AC}$ // $\overline{XY}$ and F is the midpoint of $\overline{XY}$

Prove that : The area of Δ ABF = the area of Δ CBF

[b] In the opposite figure :



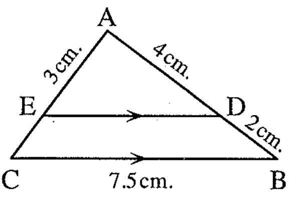
AB = 3 cm. , BC = 4 cm.

, AD = 13 cm. , CD = 12 cm.

, m (∠ B) = 90°

Prove that : m (∠ ACD) = 90°

5 **In the opposite figure :**



$\overline{DE}$ // $\overline{BC}$, AD = 4 cm. , AE = 3 cm. , BD = 2 cm. and BC = 7.5 cm.

① **Prove that :** Δ ADE ~ Δ ABC

② **Find :** The length of $\overline{ED}$

③ **Find :** The perimeter of Δ ADE

7 Alexandria Governorate

East Educational Zone
Mathematics Directing



Answer the following questions : (Allows the use of a calculator)

1 **Complete each of the following :**

① The square is a rectangle in which ....

② If the triangle ABC is right-angled at ∠ B and the projection of $\overline{AB}$ on $\overleftrightarrow{AC}$ is $\overline{DA}$, then $(AB)^2$ = ... × ....

③ If $\overline{AB} \perp \overline{BC}$, then the projection of $\overline{AB}$ on $\overleftrightarrow{BC}$ is ....

④ In Δ ABC if : $(AB)^2 > (BC)^2 + (AC)^2$, then m (∠ ....) > 90°

⑤ The triangles are similar if the corresponding angles are ....

2 Choose the correct answer from those given :

(1) The sum of the measure of the interior angles of a triangle = ...

(a) 90° (b) 180° (c) 270° (d) 360°

(2) $(AB)^2 - (BC)^2 = (AC)^2$, then ....

(a) m (∠ A) > 90° (b) m (∠ B) = 90° (c) m (∠ A) = 90° (d) m (∠ C) = 90°

(3) If Δ ABC ~ Δ DEF and AB = $\frac{1}{2}$ DE , then the perimeter of Δ ABC = ... the perimeter of Δ DEF

(a) $\frac{1}{2}$ (b) $\frac{1}{4}$ (c) 2 (d) 4

(4) In Δ ABC if m (∠ C) = 90° , AB = 20 cm. and BC = 16 cm. , then AC = ... cm.

(a) 9 (b) 12 (c) $4\sqrt{41}$ (d) 25

(5) If $\overline{AB}$ // $\overline{CD}$ and the projection of $\overline{AB}$ on $\overleftrightarrow{CD}$ is $\overline{XY}$, then XY .... AB

(a) > (b) < (c) = (d) //

(6) * If the base length of a parallelogram is 7 cm. and the corresponding height is 4 cm. , then its area .... cm^2.

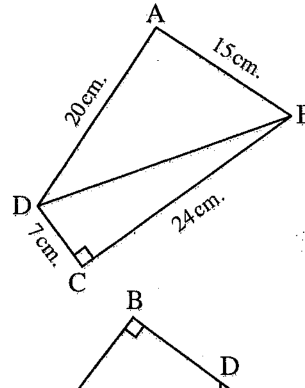
(a) 11 (b) 14 (c) 22 (d) 28

---

3 [a] In the opposite figure :

AB = 15 cm. , BC = 24 cm. , CD = 7 cm. , DA = 20 cm. and m (∠ C) = 90°

Prove that : m (∠ A) = 90°

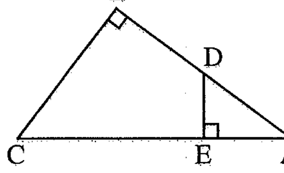




[b] In the opposite figure :

m (∠ B) = 90° , $\overline{DE} \perp \overline{AC}$

Prove that : Δ ABC ~ Δ AED



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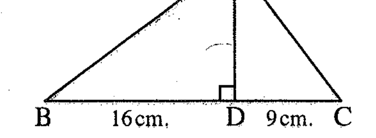
4 In the opposite figure :

m (∠ BAC) = 90° , $\overline{AD} \perp \overline{BC}$

[a] Find the projection of :

(1) $\overline{AB}$ on $\overleftrightarrow{AC}$ (2) $\overline{AC}$ on $\overleftrightarrow{BC}$ (3) $\overline{BC}$ on $\overleftrightarrow{AB}$

[b] If BD = 16 cm. and DC = 9 cm. **Find :** The length of $\overline{AD}$, $\overline{AC}$, $\overline{AB}$

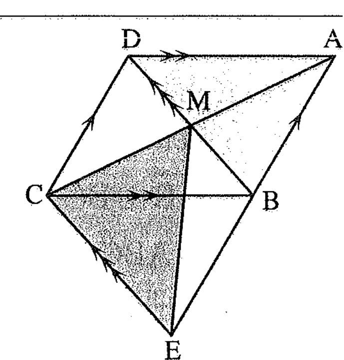


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5 [a] * In the opposite figure :

ABCD and BECD are two parallelograms , where $\overline{AC} \cap \overline{BD} = \{M\}$

Prove that : The area of Δ ABD = the area of Δ MEC

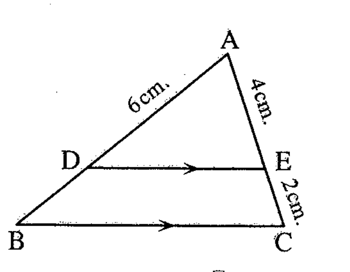


[b] In the opposite figure :

$\overline{DE} \parallel \overline{BC}$, AE = 4 cm.

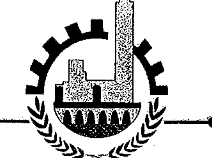
, EC = 2 cm. , AD = 6 cm.

Find : With proof the length of $\overline{AB}$



8 El-Kalyoubia Governorate

Educational Zone Language School



Answer the following questions :

1 Choose the correct answer from those given :

(1) Δ ABC in which AB = 3 cm. , BC = 6 cm. , and AC = 4 cm.
, then m (∠ B) .... 90°

(a) < (b) > (c) = (d) ≤

(2) If $\overline{AC}$ is the projection of $\overline{AB}$ on $\overleftrightarrow{AC}$, then AC .... AB

(a) < (b) > (c) = (d) ≤

(3) If Δ ABC ~ Δ DEF and AB = $\frac{2}{5}$ DE
, then the perimeter of Δ ABC = ... the perimeter of Δ DEF

(a) 2 (b) 5 (c) $\frac{2}{5}$ (d) $\frac{4}{25}$

(4) ABC is a right-angled triangle at B , AC = 10 cm. , BC = 8 cm. , then AB = ... cm.

(a) 8 (b) 10 (c) 6 (d) 4

(5) ABC is a triangle in which $(AB)^2 = (AC)^2 + (BC)^2$, m (∠ B) = 40°
, then m (∠ A) = ...

(a) 90° (b) 40° (c) 130° (d) 50°

(6) ✻ The triangle whose base length is 6 cm. and its area is 24 cm^2 , the corresponding height = ... cm.

(a) 4 (b) 8 (c) 3 (d) 18

2 Complete each of the following :

(1) The two diagonals of the isosceles trapezium are ....

(2) The two triangles are similar if its corresponding side lengths are ....

(3) The number of the diagonals of the quadrilateral = ...

(4) The area of the trapezium = ... × ....

(5) The area of the square = $\frac{1}{2}$ ....

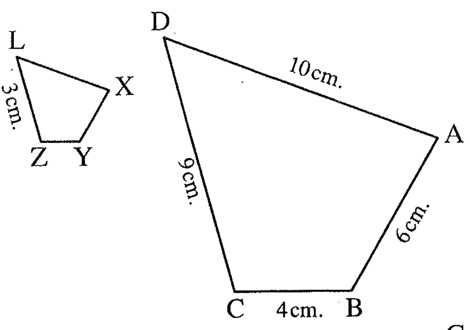
3 **[a] In the opposite figure :**

The polygon ABCD ~ the polygon XYZL

, AB = 6 cm. , BC = 4 cm. , CD = 9 cm.

, DA = 10 cm. , ZL = 3 cm.

Find : The perimeter of the polygon XYZL



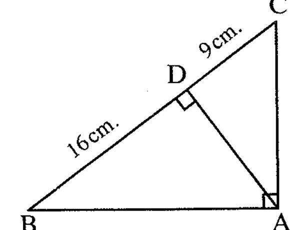
[b] In the opposite figure :

ABC is a right-angled triangle at A

, $\overline{AD} \perp \overline{BC}$, BD = 16 cm.

, DC = 9 cm.

Find : The length of each $\overline{AB}$ and $\overline{AD}$



---

4 [a] A square whose area equals the area of the rectangle whose dimensions are 2 cm. and 9 cm. find the length of its diagonal.

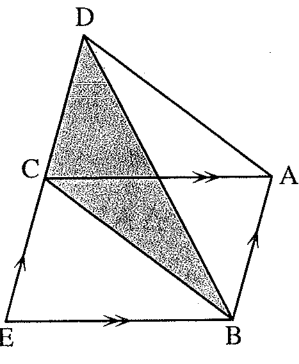
[b] * In the opposite figure :

ABEC is a parallelogram.

, $D \in \overrightarrow{EC}$

such that : The area of Δ DBC = the area of Δ EBC

Prove that : $\overline{AD} // \overline{BC}$



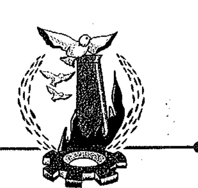
---

5 [a] A rhombus , the ratio between the length of the two diagonals is 5 : 8 , if it's area = 2000 cm^2. , find the length of each it's diagonals.

[b] Determine the type of Δ ABC according to it's angles if AB = 3.5 cm. , BC = 2.5 cm. and AC = 3 cm.

9 El-Monofia Governorate

Menouf Eductional Directorate



Answer the following questions :

1 **Complete each of the following :**

(1) In Δ ABC , if $(AB)^2 = (BC)^2 + (AC)^2$, then m ($\angle$ ....) = 90°

(2) The area of rhombus is 20 cm^2. , the length of one of its diagonals is 5 cm. , then the length of the other diagonal = ...

(3) If Δ ABC is right-angled at A and $\overline{AD} \perp \overline{BC}$, then $(AB)^2$ = ... × ....

(4) The isosceles trapezium has .... axes of symmetry.

(5) ABC is a triangle in which : $(BC)^2 = (AB)^2 + (AC)^2$, m ($\angle$ B) = 40° , then m ($\angle$ C) = ...°

2 **Choose the correct answer :**

① A square of diagonal length 12 cm. , then its area = ... cm^2.

(a) 24 (b) 36 (c) 48 (d) 72

② If Δ ABC ~ Δ DEF and m (∠ B) + m (∠ C) = 70° , then m (∠ D) = ...

(a) 70° (b) 35° (c) 140° (d) 110°

③ The middle base of a trapezium = 12 cm. long and its height = 6 cm.
, then its area = ... cm^2.

(a) 72 (b) 36 (c) 9 (d) 18

④ The length of the projection of a line segment on a given straight line .... the length of the line segment itself.

(a) < (b) ≤ (c) ≥ (d) =

⑤ ABC is an obtuse-angled triangle at A in which AB = 5 cm. , BC = 8 cm.
, then AC = ... cm.

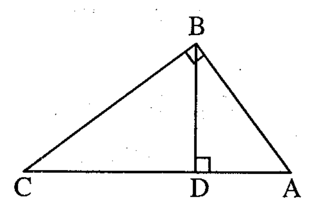
(a) 5 (b) 7 (c) 8 (d) 13

⑥ * The two triangles drawn on a common base their vertices located on a straight line parallel to the base are ....

(a) congruent. (b) similar. (c) equal in perimeter. (d) equal in area.

---

3 **[a] In the opposite figure :**



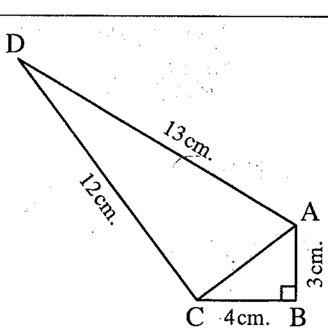
Δ ABC is right-angled at B , $\overline{BD} \perp \overline{AC}$
, AD = 9 cm. , and CD = 16 cm.

Find : ① The length of $\overline{AB}$ ② The length of $\overline{BD}$

[b] Determine the type of Δ ABC according to its angles.
If AB = 2.5 cm. , BC = 1.5 cm. and AC = 2 cm.

---

4 **[a] In the opposite figure :**

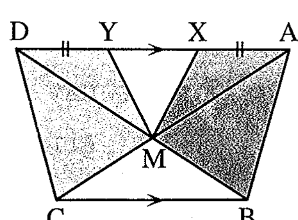


BC = 4 cm. , AD = 13 cm. , AB = 3 cm.
, DC = 12 cm. , m (∠ B) = 90°

① **Find :** The length of $\overline{AC}$

② **Prove that :** m (∠ ACD) = 90°

[b] * In the opposite figure :



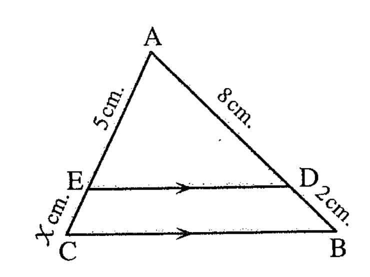
ABCD is a quadrilateral whose diagonals intersect at M
, $\overline{AD}$ // $\overline{BC}$, X ∈ $\overline{AD}$ and Y ∈ $\overline{AD}$

Such that : AX = DY

Prove that : The area of the figure ABMX = the area of the figure DCMY

5 **[a]** Two similar polygons in which the ration between the lengths of two corresponding sides is 1 : 3 if the perimeter of the smaller is 20 cm. , find the perimeter of the greater.

[b] In the opposite figure :



ABC is a triangle in which $\overline{DE} // \overline{BC}$, BD = 2 cm.

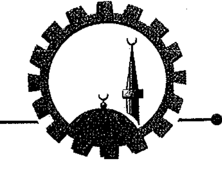
, AD = 8 cm. , AE = 5 cm. , CE = X cm.

(1) **Prove that :** Δ ADE ~ Δ ABC

(2) **Find the value of :** X

10 El-Gharbia Governorate

Centeral Maths supervision
Official language schools



Answer the following questions :

1 **Complete each of the following :**

(1) In Δ ABC , if $(AC)^2 + (BC)^2 = (AB)^2$, then m ($\angle$ ....) = 90°

(2) If the point A $\in$ the line L , then the projection of the point A on the line L is ....

(3) A trapezium whose bases lengths are 8 cm. , 10 cm. , and its height is 5 cm. , then its area equals .... cm^2.

(4) The area of rhombus is 24 cm^2. , the length of one of its diagonals is 8 cm. , then the length of other diagonal is ....

(5) The two polygons that are similar to third are ....

---

2 **Choose the correct answer :**

(1) A square of perimeter 20 cm. , then its area equals .... cm^2.

(a) 20 (b) 25 (c) 50 (d) 100

(2) ABC is right-angled triangle at B , $\overline{BD} \perp \overline{AC}$, D $\in \overline{AC}$, then the projection of $\overline{BD}$ on $\overline{AC}$ is ....

(a) A (b) B (c) C (d) D

(3) If the ratio of enlargement between two triangles equals 1 , then the two triangles are ....

(a) congruent. (b) different. (c) right-angled. (d) coincide.

(4) A trapezium whose middle base length is 8 cm. , then the length of the two parallel bases may be .... cm.

(a) 3 , 5 (b) 6 , 10 (c) 4 , 6 (d) 4 , 4

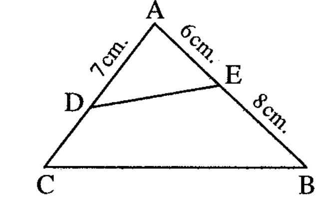
(5) In Δ ABC , if $(AB)^2 > (BC)^2 + (AC)^2$, then the angle C is ....

(a) acute. (b) right. (c) obtuse. (d) straight.

(6) ✻ ABCD is a parallelogram in which , AB = 5 cm. , BC = 10 cm. and its smaller height is 4 cm. , then its greater height = ... cm.

(a) 2 (b) 4 (c) 8 (d) 10

3 **[a] In the opposite figure :**

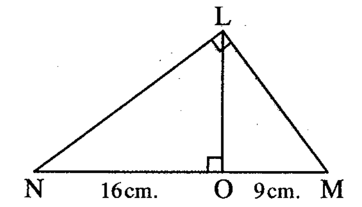


If Δ ABC ~ Δ ADE , AE = 6 cm.

, AD = 7 cm. and BE = 8 cm.

Find : (1) DC (2) $\frac{DE}{BC}$

[b] In the opposite figure :



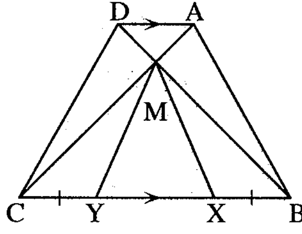
LMN is a right-angled triangle at L

, $\overline{LO} \perp \overline{MN}$, MO = 9 cm. and NO = 16 cm.

Find : The length of each of $\overline{LM}$, $\overline{LN}$ and $\overline{LO}$

4 [a] Determine the type of the angle C in Δ ABC in which AB = 7 cm. , BC = 3 cm. and AC = 5 cm.

[b] ✻ In the opposite figure :

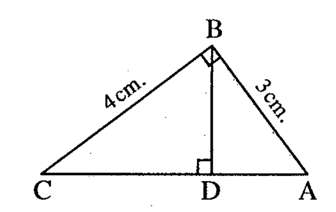


$\overline{AD} // \overline{BC}$, $\overline{AC} \cap \overline{BD} = \{M\}$ and BX = CY

Prove that :

The area of the figure ABXM = the area of the figure DCYM

5 **Complete : In the opposite figure :**



ABC is a right-angled triangle at B , $\overline{BD} \perp \overline{AC}$

(1) The projection of $\overline{AB}$ on $\overleftrightarrow{AC}$ is ....

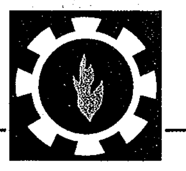
(2) $(BD)^2$ = AD × .... (3) $(BC)^2$ = CA × ....

(4) Δ ABC ~ Δ .... ~ Δ ....

(5) The perimeter of Δ ABC : the perimeter of Δ DBC = ...

11 Suez Governorate

Math's Inspectorate



Answer the following questions :

1 **Choose the correct answer :**

(1) In Δ ABC if $(AC)^2 + (AB)^2 < (BC)^2$, then $\angle$ A is ....

(a) acute. (b) right. (c) obtuse. (d) straight.

(2) The area of square of diagonal length 6 cm. is .... cm^2

(a) 18 (b) 36 (c) 12 (d) 6

(3) If the projection of a line segment on a straight line is a point , then the line segment .... straight line.

(a) // (b) ⊥ (c) ≡ (d) ⊂

(4) Δ ABC ~ Δ XYZ if $AB = \frac{1}{2}XY$, then perimeter of Δ XYZ = ... perimeter of Δ ABC

(a) $\frac{1}{2}$ (b) $\frac{1}{3}$ (c) 2 (d) 3

(5) The number of axes of symmetry of the rectangle is ....

(a) 0 (b) 3 (c) 1 (d) 2

(6) ✻ If ABCD is a parallelogram with area 20 cm² and $E \in \overline{AD}$, then the area of Δ EBC = ... cm²

(a) 10 (b) 5 (c) 20 (d) 40

---

2 **Complete each of the following :**

(1) A triangle of sides length 8 cm. , 9 cm. , 6 cm. its type is .... angled triangle.

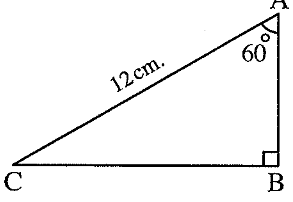
(2) The area of rhombus whose diagonals are 18 cm. and 15 cm. is .... cm²

(3) **In the opposite figure :**

AC = 12 cm. , m (∠ B) = 90°

, m (∠ A) = 60°

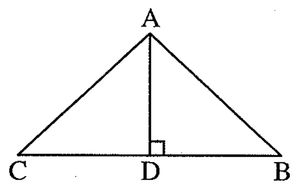
, AB = ... cm.



(4) Two triangles are similar if their corresponding angles are ....

(5) **In the opposite figure :**

The projection of $\overline{AB}$ on $\overleftrightarrow{BC}$ is ....



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3 **[a]** Find the area of trapezium of length of two parallel base 9 cm. , 6 cm. and its height is 8 cm.

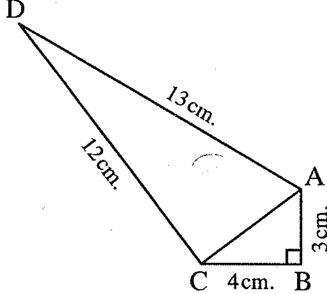
[b] In the opposite figure :

AB = 3 cm. , AD = 13 cm. , BC = 4 cm.

, DC = 12 cm. , m (∠ B) = 90°

(1) **Find :** The length of $\overline{AC}$

(2) **Prove that :** m (∠ ACD) = 90°



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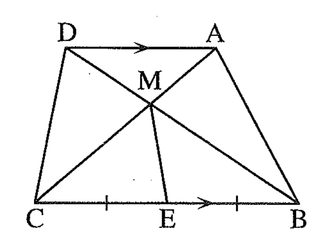
4 **[a]** ✻ **In the opposite figure :**

$\overline{AD} // \overline{BC}$, $\overline{AC} \cap \overline{BD} = \{M\}$

, E is the midpoint of $\overline{BC}$

Prove that :

The area of the figure ABEM = the area of the figure DMEC

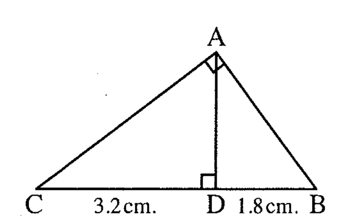


[b] In the opposite figure :

DB = 1.8 cm.

, CD = 3.2 cm.

Find : The length of each of : $\overline{AB}$, $\overline{AD}$ and $\overline{AC}$



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5 **[a]** A trapezium with area 40 cm^2 and its height is 5 cm. its middle base = ·············· cm.

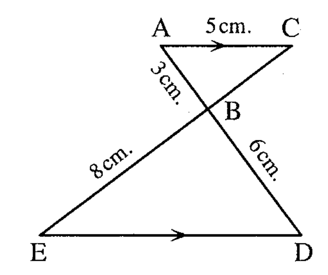
[b] In the opposite figure :

$\overline{AC}$ // $\overline{ED}$, AC = 5 cm. , AB = 3 cm.

, DB = 6 cm. , EB = 8 cm.

Prove that : Δ ABC ~ Δ DBE

Find : The length of each of : $\overline{BC}$, $\overline{DE}$



12 Port Said Governorate

Governmental Exp. Lang. School



Answer the following questions :

1 **Complete each of the following :**

(1) The two triangles are similar if there corresponding angles are ·············· in measure.

(2) A trapezium whose base lengths are 4 cm. and 6 cm.
, then the length of its middle base = ·············· cm.

(3) The projection of a point on a given straight line is ··············

(4) In Δ ABC , if $(AB)^2 = (BC)^2 + (AC)^2$, then m ($\angle$ ··············) = 90°

(5) The isosceles trapezium has ·············· axis of symmetry.

---

2 **Choose the correct answer from the given ones :**

(1) The area of rhombus whose diagonal lengths are 6 cm. , 8 cm. = ·············· cm^2.

(a) 2 (b) 14 (c) 24 (d) 48

(2) The length of projection of a given line segment ·············· the length of the original line segment.

(a) ≥ (b) > (c) ≤ (d) <

(3) In Δ ABC if $(AB)^2 < (BC)^2 + (AC)^2$, then the angle C is ··············

(a) acute. (b) obtuse. (c) right. (d) straight.

(4) If the ratio between the lengths of two corresponding sides in two similar triangles is equal to 1 , then the two triangles are ··············

(a) congruent. (b) different. (c) right-angle. (d) coincide.

⑤ The area of the square whose side length 4 cm. = ... cm^2.

(a) 4 (b) 16 (c) 8 (d) 1

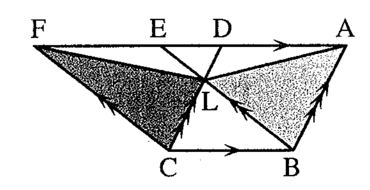
⑥ ✱ If $\overline{XL}$ is a median in Δ XYZ

, then the area of Δ XYZ = ... the area of Δ XYL

(a) $\frac{1}{2}$ (b) 3 (c) 2 (d) 3

3 **[a]** Find the area of trapezium whose length of two parallel bases 3 cm. , 5 cm. and its height 10 cm.

[b] ✱ In the opposite figure :



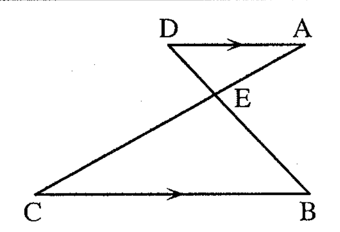
ABCD and EBCF are two parallelograms

, $\overline{BE} \cap \overline{CD} = \{L\}$, D ∈ $\overline{AF}$ and E ∈ $\overline{AF}$

Prove that : ① The area of Δ ABL = the area of Δ FCL

② The area of the figure ABCL = the area of the figure FCBL

4 **[a] In the opposite figure :**



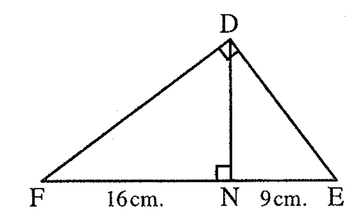
$\overline{AD}$ // $\overline{BC}$

Prove that : Δ AED ~ Δ CEB

[b] In Δ XYZ , XY = 9 cm. , YZ = 12 cm. and XZ = 15 cm.

Prove that : m (∠ XYZ) = 90°

5 **[a] In the opposite figure :**



DEF is a right-angled triangle at D

, $\overline{DN} \perp \overline{EF}$, EN = 9 cm. and NF = 16 cm.

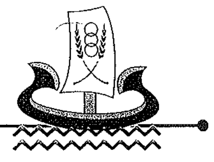
Find : The length of $\overline{EF}$, $\overline{DE}$ and $\overline{DF}$

[b] Determine the type of Δ ABC according to its angles

If AB = 7 cm. , BC = 12 cm. and AC = 8 cm.

13 Kafr El-Sheikh Governorate

Inspection of Mathematic Language Schools



Answer the following questions :

1 **Choose the correct answer :**

① A trapezium whose middle base length is 12 cm. and its height = 3 dm.

, then its area = ... cm^2.

(a) 360 (b) 15 (c) 63 (d) 36

② Rhombus , the lengths of its diagonals are 6 cm. and 8 cm.
, then its perimeter = ... cm.

(a) 24 (b) 28 (c) 20 (d) 14

③ Number of axis of symmetry of isosceles trapezium = ...

(a) 1 (b) 2 (c) 3 (d) 4

④ In Δ ABC if $(AB)^2 = (AC)^2 - (BC)^2$, then (∠ C) is .... angle.

(a) right (b) acute (c) obtuse (d) straight

⑤ ABC is an acute angled-triangle which AB = 6 cm. , BC = 8 cm.
, the length of $\overline{AC}$ = ... cm.

(a) 2 (b) 6 (c) 10 (d) 14

⑥ ✻ If ABCD is a parallelogram in which AB = 5 cm. , BC = 10 cm. and its smaller height is 4 cm. , then its greater height = ...

(a) 2 cm. (b) 4 cm. (c) 8 cm. (d) 10 cm.

---

2 Complete each of the following :

① If two polygons are similar to a third , then they are ....

② The length of the projection of a line segment on a straight line perpendicular to it = ...

③ The length of the projection of a line segment on a straight line .... the length of the original line segment.

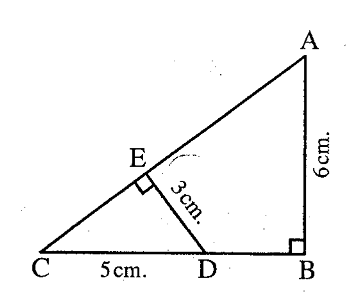
④ In Δ XYZ , if $(XY)^2 = (ZY)^2 + (XZ)^2 + 5$, then m (∠ XZY) > ....°

⑤ The diagonals of an isosceles trapezium are ....

---

3 **[a]** The area of a trapezium is 450 cm^2. and the two bases lengths are 12 cm. and 24 cm. find the length of its height.

[b] In the opposite figure :



ABC is a right-angled triangle at B

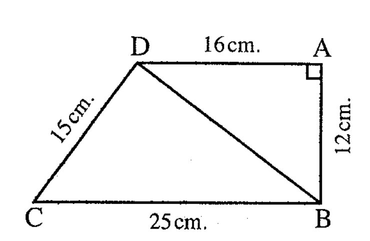
, $\overline{ED} \perp \overline{AC}$, AB = 6 cm. , ED = 3 cm.

, CD = 5 cm.

Prove that : Δ CED ~ Δ CBA , then find the length of $\overline{AC}$

---

4 **[a] In the opposite figure :**



$\overline{AD} \perp \overline{AB}$, AB = 12 cm.

, AD = 16 cm. , CD = 15 cm. , CB = 25 cm.

Prove that : ① Δ CBD is right-angled.

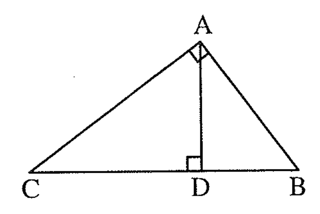
② Then find the area of figure ABCD

[b] In the opposite figure :

$\overline{AD} \perp \overline{CB}$

, $\overline{AC} \perp \overline{AB}$

Prove that : $\Delta ABC \sim \Delta DBA \sim \Delta DAC$



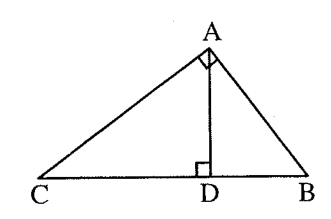
5 **[a] In the opposite figure :**

ΔABC is right-angled at A , $\overline{AD} \perp \overline{CB}$

Complete : (1) $(AD)^2 = \cdots\cdots \times \cdots\cdots$

(2) $(AB)^2 = \cdots\cdots \times \cdots\cdots$

(3) $(AC)^2 = \cdots\cdots \times \cdots\cdots$

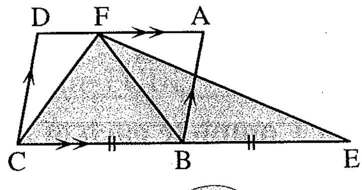


[b] * In the opposite figure :

ABCD is a parallelogram.

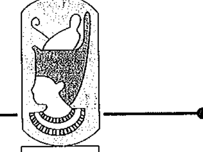
, $E \in \overrightarrow{CB}$, where BC = BE

Prove that : The area of Δ EFC = the area of ▱ ABCD



14 Souhag Governorate

Maths Inspection



Answer the following questions :

1 **Choose the correct answer :**

(1) In ΔABC if $(AB)^2 > (BC)^2 + (AC)^2$, then the angle C is ……………

(a) acute. (b) right. (c) obtuse. (d) straight.

(2) The ratio between the lengths of two corresponding sides of two similar polygons is 3 : 5 , then the ratio between their perimeters is ……………

(a) 2 : 5 (b) 5 : 3 (c) 3 : 5 (d) 5 : 2

(3) ΔABC in which $(AB)^2 - (BC)^2 = (AC)^2$, m ($\angle$ B) = 40° , then m ($\angle$ A) = ……………

(a) 40° (b) 50° (c) 90° (d) 130°

(4) If the ratio of enlargement between two similar triangles equals 1 , then the two triangle are ……………

(a) congruent. (b) different. (c) right-angled. (d) coincide.

(5) A square of area 18 cm^2 , the length of its diagonal = …………… cm.

(a) 9 (b) 36 (c) 6 (d) 12

(6) * The two triangles drawn on a common base and their vertices located on a straight line parallel to the base are ……………

(a) similar. (b) congruent. (c) equal in area. (d) equal in perimeter.

2 **Complete each of the following :**

(1) The two polygons are similar , if their corresponding sides lengths are .... and their corresponding angles are ....

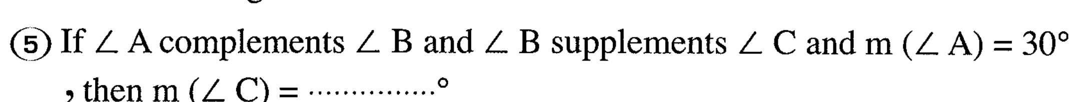
(2) In Δ ABC if $(AB)^2 = (BC)^2 - (AC)^2$, then m ($\angle$ ....) = 90°

(3) A trapezium whose parallel bases lengths are 12 cm. , 18 cm. and its height is 12 cm. , then its area equals .... cm^2.

(4) **In the opposite figure :**

Δ ADE ~ Δ ABC

, then the length of BC .... cm.



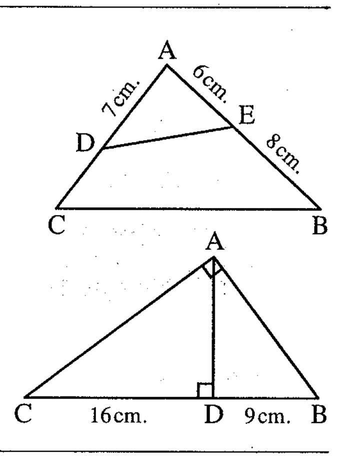
(5) If $\angle$ A complements $\angle$ B and $\angle$ B supplements $\angle$ C and m ($\angle$ A) = 30° , then m ($\angle$ C) = ...°



3 **[a] In the opposite figure :**

Δ ABC ~ Δ ADE , AE = 6 cm. , AD = 7 cm. , BE = 8 cm.

Find : (1) The length of $\overline{DC}$ (2) $\frac{DE}{BC}$



[b] In the opposite figure :

ABC is a right-angled triangle at A , $\overline{AD} \perp \overline{BC}$, BD = 9 cm. , CD = 16 cm.

Find : The length of each of $\overline{AB}$, $\overline{AC}$, $\overline{AD}$

---

4 **[a]** The side lengths of one of two similar triangles are 3 cm. , 4 cm. and 5 cm. and the perimeter of the other triangle is 36 cm. , find the side lengths of the other triangle.

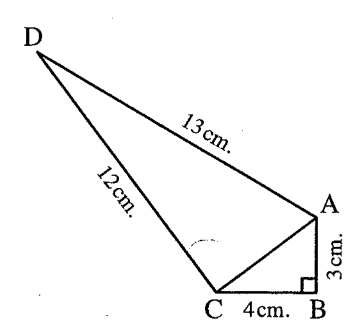
[b] In the opposite figure :

AB = 3 cm. , BC = 4 cm.

, AD = 13 cm. , CD = 12 cm.

, m ($\angle$ B) = 90°

Prove that : m ($\angle$ ACD) = 90°



---

5 **[a] In the opposite figure :**

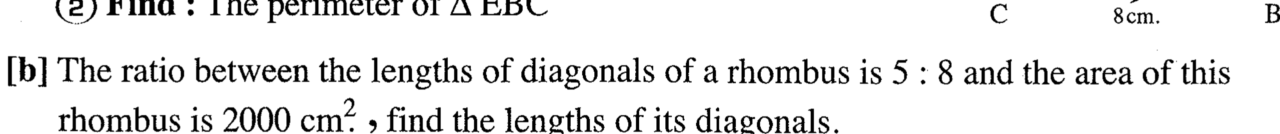
$\overline{AD}$ // $\overline{BC}$, AD = 4 cm. , BC = 8 cm. , AE = 3 cm. and ED = 2 cm.

(1) **Prove that :** Δ AED ~ Δ CEB



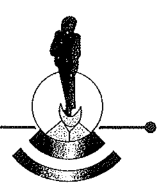
(2) **Find :** The perimeter of Δ EBC

[b] The ratio between the lengths of diagonals of a rhombus is 5 : 8 and the area of this rhombus is 2000 cm^2. , find the lengths of its diagonals.



15 Red Sea Governorate

Directorate of Education
El-Quseir Governmental languages school



Answer the following questions :

1 Choose the correct answer :

(1) The area of rhombus whose diagonals 6 cm. and 10 cm. = ... cm^2.

(a) 60 (b) 30 (c) 10 (d) 6

(2) If ABC is an acute angled triangle at C , then $(AB)^2$ .... $(BC)^2 + (AC)^2$

(a) < (b) = (c) > (d) ≤

(3) **In the opposite figure :**

The projection of $\overline{AB}$ on $\overleftrightarrow{BC}$ is ....

(a) $\overline{AB}$ (b) $\overline{AC}$

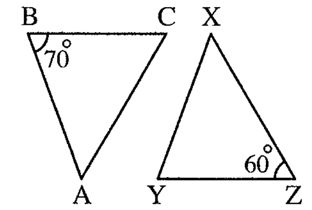
(c) $\overline{BC}$ (d) $\{B\}$

(4) The diagonals of an isosceles trapezium are ....

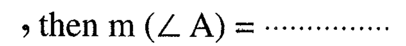
(a) parallel. (b) equal in length.

(c) not equal in length. (d) perpendicular.

(5) **In the opposite figure :**



If Δ ABC ~ Δ XYZ



, then m (∠ A) = ...

(a) 50° (b) 60°

(c) 70° (d) 110°

(6) * The triangle whose base length is 6 cm. and its area 30 cm^2.
, the corresponding height = ...

(a) 5 (b) 36 (c) 10 (d) 15

---

2 Complete each of the following :

(1) The two polygons are similar , if their corresponding sides are .... and their corresponding angles are ....

(2) If two polygons are similar and the ratio between the length of two corresponding sides is 2 : 5 , then the ratio between their perimeter is ....

(3) The area of square is 50 cm^2 , then the length of its diagonal is .... cm.

(4) If the measure of the corresponding angles in the two triangles are equal in measure , then the two triangles are ....

(5) A square of perimeter 20 cm. , then its area equals .... cm^2.

3 **[a] In the opposite figure :**

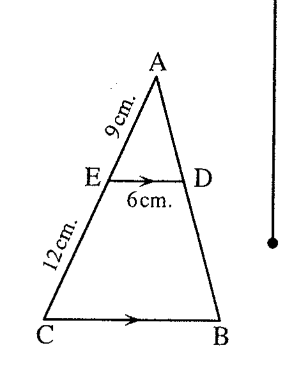
$\overline{ED} \parallel \overline{CB}$, AE = 9 cm.

, EC = 12 cm. and ED = 6 cm.

Prove that :

(1) $\Delta ABC \sim \Delta ADE$

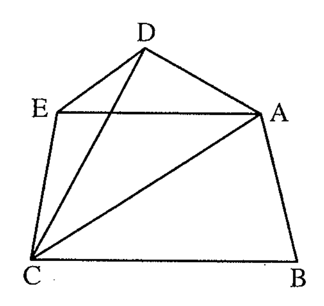
(2) **Find :** The length of $\overline{CB}$



[b] ✻ In the opposite figure :

The area of the figure ABCD = the area of the figure ABCE

Prove that : $\overline{DE} \parallel \overline{AC}$



---

4 **[a]** Find the height of a trapezium with area of 450 cm^2 and the two base lengths are 24 cm. and 12 cm.

[b] Find the area of a square whose diagonal length is 8 cm.

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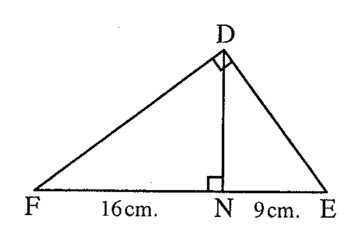
5 **[a] In the opposite figure :**

DEF is a right-angled triangle at D

, $\overline{DN} \perp \overline{EF}$, EN = 9 cm.

and FN = 16 cm.

Find : The length of each of $\overline{DE}$ and $\overline{DN}$



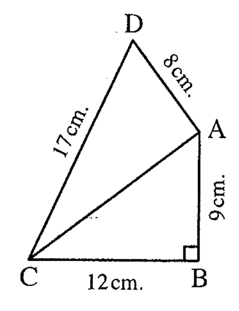
[b] In the opposite figure :

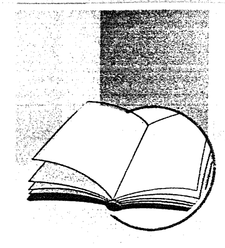
ABCD is a quadrilateral

, m (∠ B) = 90° , AB = 9 cm. , BC = 12 cm.

, CD = 17 cm. and DA = 8 cm.

Prove that : m (∠ DAC) = 90°





Some Schools Examinations

1 Cairo Governorate

Zeitoun Educational Administration
Gomhouria Language School



Answer the following questions :

1 Choose the correct answer :

(1) In Δ ABC : If $(AB)^2 > (BC)^2 + (AC)^2$, then the angle C is ....

(a) acute. (b) right. (c) obtuse. (d) straight.

(2) The ratio between the lengths of two corresponding sides of two similar polygons is 3 : 5 , then the ratio between their perimeters is ....

(a) 2 : 5 (b) 5 : 3 (c) 3 : 5 (d) 5 : 2

(3) ABC is a right-angled triangle at B , $\overline{BD} \perp \overline{AC}$, then the projection of $\overline{BD}$ on $\overline{AC}$ is the point ....

(a) A (b) B (c) C (d) D

(4) If $\overline{AB} \parallel \overleftrightarrow{XY}$, then the length of the projection of $\overline{AB}$ on $\overleftrightarrow{XY}$ .... the length of $\overline{AB}$

(a) $<$ (b) $>$ (c) $=$ (d) $\leq$

(5) If the ratio of an enlargement between two triangles equals 1 , then the two triangles are ....

(a) congruent. (b) different. (c) right-angled. (d) coincide.

---

2 Complete :

(1) The two polygons are similar if their corresponding side lengths are .... and their corresponding angles are ....

(2) If the point A $\in$ the straight line L , then the projection of the point A on this straight line is ....

(3) In Δ ABC : If $(XY)^2 + (YZ)^2 = (XZ)^2$, then m ($\angle$ ....) = 90°

(4) The two polygons that are similar to a third are ....

(5) If two triangles are similar , then their corresponding angles are ....

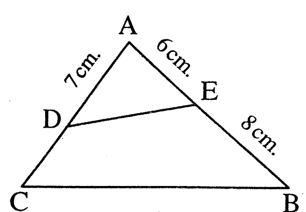
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3 [a] In the opposite figure :

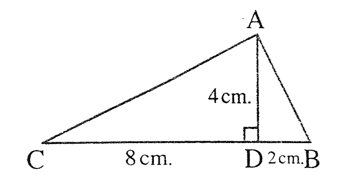
If Δ ABC ~ Δ ADE , AE = 6 cm.

, AD = 7 cm. and BE = 8 cm.

Find : (1) DC (2) $\frac{DE}{BC}$



[b] In the opposite figure :



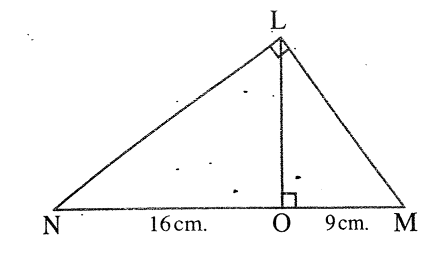
ABC is a triangle in which : BD = 2 cm.

, CD = 8 cm. , AD = 4 cm. , $\overline{AD} \perp \overline{BC}$

Prove that : m ($\angle$ BAC) = 90°

4 [a] Determine the type of the angle C in Δ ABC in which AB = 7 cm. , BC = 3 cm. and AC = 5 cm.

[b] In the opposite figure :

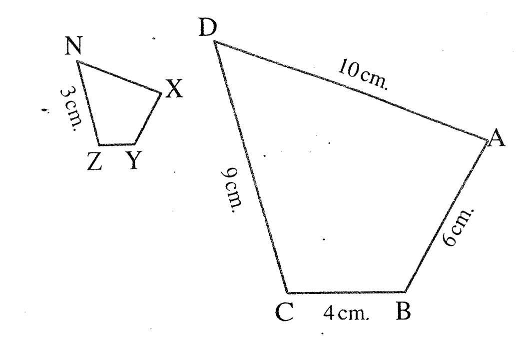


LMN is a right-angled triangle at L ,

$\overline{LO} \perp \overline{MN}$, MO = 9 cm. and NO = 16 cm.

Find : The length of each of $\overline{LM}$, $\overline{LN}$ and $\overline{LO}$

5 **In the opposite figure :**



The polygon ABCD ~ the polygon XYZN,

AB = 6 cm. , BC = 4 cm. , CD = 9 cm. ,

DA = 10 cm. and ZN = 3 cm.

Find : The length of each of $\overline{XY}$, $\overline{YZ}$ and $\overline{XN}$

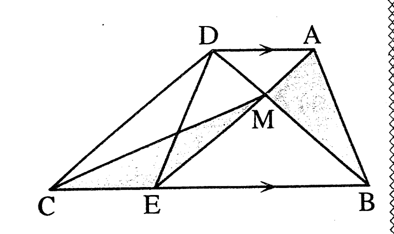
Additional question

[a] Complete each of the following :

(1) The median of a triangle divides its surface into ....

(2) If the area of a trapezium is 75 cm^2 and the length of its middle base is 15 cm. , then its height .... cm.

[b] In the opposite figure :



$\overline{AD}$ // $\overline{BC}$, $\overline{AE} \cap \overline{BD} = \{M\}$

, the area of Δ AMB = the area of Δ EMC

Prove that : $\overline{ME}$ // $\overline{DC}$

2 Cairo Governorate

Abdeen Directorate
Patriarchal College



Answer the following questions :

1 Complete :

(1) In a triangle, if the square of the length of a side is equal to the sum of the squares of the lengths of the other two sides , then the angle opposite to this side is a ....

(2) If $\overline{AB} \perp \overline{BC}$, then the projection of $\overline{AC}$ on $\overleftrightarrow{BC}$ is ....

(3) If ABC in an isosceles triangle , AB = AC = 5 cm. and BC = 6 cm., then the length of projection of $\overline{AB}$ on $\overleftrightarrow{BC}$ is .... cm.

(4) The two polygons are similar if their corresponding sides lengths are .... and their corresponding angles are ....

(5) In triangle ABC : If $(AB)^2 - (AC)^2 < (BC)^2$, then $\angle$ C is ....

---

2 Choose the correct answer :

(1) The length of the projection of a given line segment .... the length of the original line segment.

(a) < (b) ≤ (c) > (d) ≥

(2) The ratio between the lengths of corresponding sides of two similar triangle is 3 : 5 , if the perimeter of the greater triangle is 60 cm. , then the perimeter of the smaller triangle is .... cm.

(a) 24 (b) 36 (c) 40 (d) 100

(3) If Δ ABC ~ Δ DEO , AB = $\frac{1}{4}$ DE , then the perimeter of Δ ABC equals .... the perimeter of Δ DEO

(a) 4 (b) 2 (c) $\frac{1}{4}$ (d) $\frac{1}{2}$

(4) If ABC is an obtuse-angled triangle at A in which AB = 5 cm. , BC = 8 cm. , then AC = ... cm.

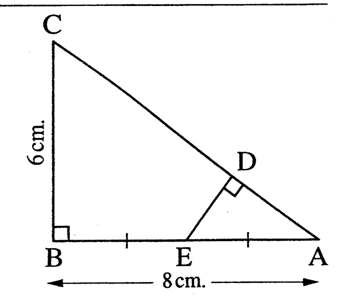
(a) 5 (b) 7 (c) 8 (d) 13

(5) Δ ABC in which : $(AB)^2 - (BC)^2 = (AC)^2$, m ($\angle$ B) = 40° , then m ($\angle$ A) = ...

(a) 40° (b) 50° (c) 90° (d) 130°

---

3 [a] In the opposite figure :



ABC is a right-angled triangle at B ,
E is the midpoint of $\overline{AB}$, $\overline{ED} \perp \overline{AC}$
, AB = 8 cm. , BC = 6 cm.
Find : The length of $\overline{ED}$

[b] Find the length of $\overline{BC}$ in the triangle ABC , in which : $(AB)^2 > (AC)^2 + (BC)^2$,

AB = 15 cm. , AC = 13 cm. , $\overline{AD} \perp \overrightarrow{BC}$ and intersects it at D , AD = 12 cm.

---

4 **[a] In the opposite figure :**

ABCD is a quadrilateral , where

m (∠ BCD) = m (∠ BAD) = 90° ,

$\overline{AE} \perp \overline{BD}$, BC = 7 cm.

, CD = 24 cm. , AB = 15 cm.

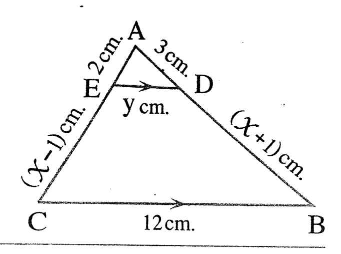
Find : (1) The length of the projection of $\overline{BD}$ on $\overleftrightarrow{AD}$

(2) The length of the projection of $\overline{AB}$ on $\overleftrightarrow{BD}$

(3) The length of the projection of $\overline{AD}$ on $\overleftrightarrow{AE}$



[b] In the opposite figure :

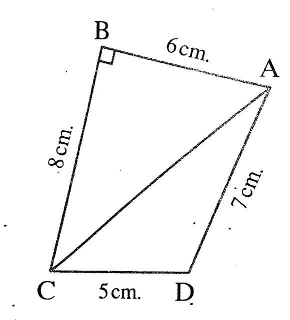


$\overline{ED} // \overline{BC}$

Find : The values of X and y

---

5 **[a] In the opposite figure :**



ABCD is a quadrilateral in which :

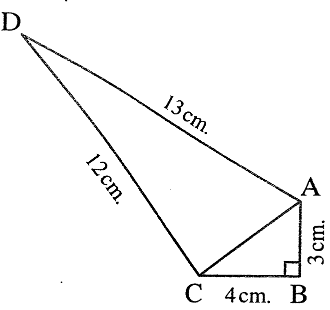
m (∠ B) = 90° , AB = 6 cm. BC = 8 cm.

, AD = 7 cm. and DC = 5 cm.

Determine the type of the angle which has the greatest measure in triangle ACD



[b] In the opposite figure :



AB = 3 cm. , BC = 4 cm. , AD = 13 cm.

, CD = 12 cm., m (∠ ABC) = 90°

Prove that : m (∠ ACD) = 90°

Additional question

[a] Choose the correct answer :

(1) A rhombus is of two diagonal lengths 8 cm. and 6 cm. , its area = ... cm^2

(a) 14 (b) 24 (c) 48 (d) 20

(2) The height of the triangle whose area is 24 cm^2 , and its corresponding base length is 8 cm. equals .... cm.

(a) 3 (b) 8 (c) 4 (d) 6

[b] In the opposite figure :

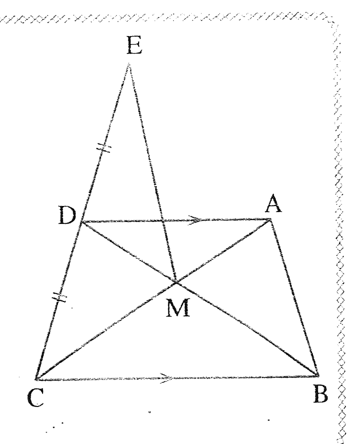
$\overline{AD} \parallel \overline{BC}$,

$\overline{AC} \cap \overline{BD} = \{M\}$,

D is the midpoint of $\overline{EC}$

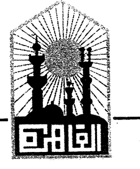
Prove that :

The area of Δ MDE = the area of Δ AMB



3 Cairo Governorate

El Waili Educational Directorate
Notre Dame Desapotres School



Answer the following questions :

1 Choose the correct answer :

(1) The triangle whose side lengths are 4 cm., 5 cm. and 6 cm. is .... -angled triangle.

(a) acute (b) obtuse (c) right (d) isosceles

(2) If $\overline{AB} \parallel \overline{XY}$, then the length of the projection of $\overline{AB}$ on $\overleftrightarrow{XY}$ .... the length of $\overline{AB}$

(a) > (b) ≥ (c) = (d) <

(3) The ratio between the lengths of two corresponding sides of two similar polygons is 3 : 5 , then the ratio between their perimeters ....

(a) 2 : 5 (b) 5 : 3 (c) 3 : 5 (d) 1 : 2

(4) If the ratio of enlargement between two triangles equal 1 , then the two triangles are ....

(a) congruent. (b) different. (c) right-angled. (d) coincide.

(5) If Δ ABC ~ Δ DEF and m ($\angle$ B) + m ($\angle$ C) = 70 , than m ($\angle$ D) = ...

(a) 70° (b) 90° (c) 110° (d) 180°

---

2 Complete :

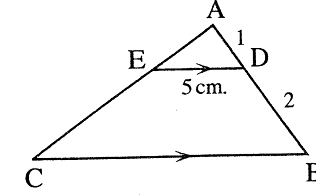
(1) ABC is a triangle, if $(AC)^2 + (CB)^2 = (AB)^2 - 9$, then angle C is ....

(2) Two polygons are similar if corresponding sides lengths are .... and their corresponding angles are ....

(3) **In the opposite figure :**

Δ ABC ~ Δ ADE , AD : DB = 1 : 2, if ED = 5 cm.

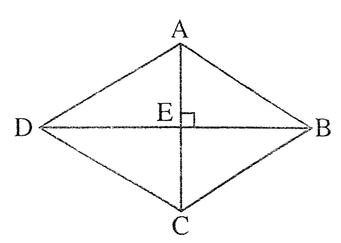
, then BC = ... cm.



(4) **In the opposits figure :**

ABCD is a rhombus, then the

projection of $\overline{AD}$ on $\overleftrightarrow{AC}$ is ....



(5) ABC is a triangle, AB = 12 cm. , BC = 5 cm. and AC = 13 cm.

, then m (∠ ....) = 90°

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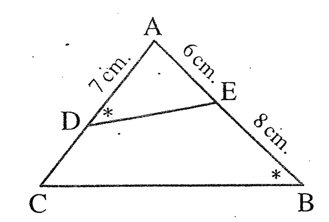
3 [a] **In the opposite figure :**

ABC is a triangle, m (∠ ADE) = m (∠ ABC)

, AE = 6 cm. , EB = 8 cm. , AD = 7 cm.

(1) **Prove that :** Δ AED ~ Δ ACB

(2) **Find :** The length of $\overline{CD}$



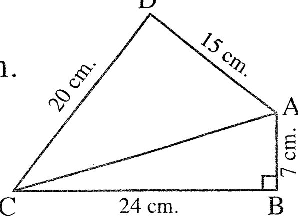
[b] **In the opposite figure :**

ABCD is aquadrilateral in which : m (∠ ABC) = 90° , AB = 7 cm.

, BC = 24 cm. , CD = 20 cm. and AD = 15 cm.

(1) **Find :** The length of $\overline{AC}$

(2) **Prove that :** m (∠ ADC) = 90°



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4 [a] **In the opposite figure :**

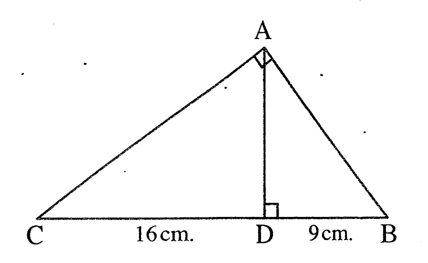
m (∠ BAC) = 90° , $\overline{AD} \perp \overline{BC}$

Complete :

(1) The projection of $\overline{AB}$ on $\overleftrightarrow{BC}$ is ....

(2) AB = ... cm.

(3) AD = ... cm.



[b] Δ ABC ~ Δ EFD , AB = 4 cm. , BC = 5 cm. , AC = 6 cm., if the perimeter of triangle EFD = 60 cm.

Find : The lengths of the sides of Δ EFD

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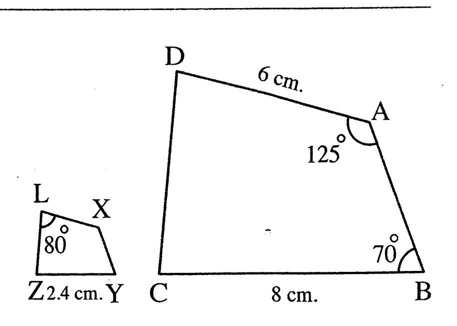
5 [a] **In the opposite figure :**

The polygon ABCD ~ the polygon XYZL

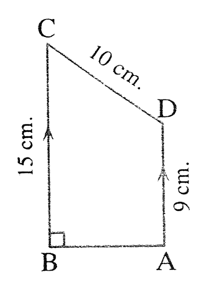
Calculate : (1) m (∠ BCD)

(2) The length of $\overline{XL}$

and determine the enlargement ratio.



[b] In the opposite figure :



ABCD is a trapezium in which :

$\overline{AD} \parallel \overline{BC}$ and m ($\angle$ ABC) = 90°

If AD = 9 cm. , DC = 10 cm. and CB = 15 cm.

Find : (1) The length of the projection of $\overline{DC}$ on $\overleftrightarrow{BC}$

(2) The length of the projection of $\overline{DC}$ on $\overleftrightarrow{AB}$

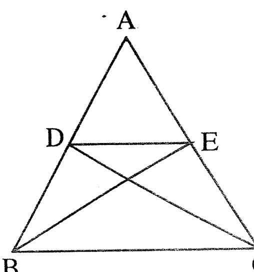
Additional question

[a] Complete each of the following :

(1) If the area of a parallelogram is 35 cm^2 and the length of one base is 10 cm. , then the corresponding height of this base is .... cm.

(2) Triangles whose bases are equal in length and lying between two parallel straight lines are ....

[b] In the opposite figure :

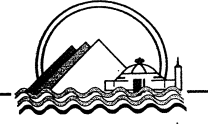


If the area of Δ ACD = the area of Δ ABE

Prove that : $\overline{ED} \parallel \overline{BC}$

4 Giza Governorate

El-Haram Directorate
The Egyptian International School



Answer the following questions :

1 Complete :

(1) The two polygons are similar if their corresponding side lengths are .... and their corresponding angles are ....

(2) In Δ ABC : if $(AB)^2 = (BC)^2 - (AC)^2$, m ($\angle$ ....) = 90°

(3) If the ratio of enlargement between two triangles equals 1 , then the two triangles are ....

(4) The projection of a point on a given straight line is ....

(5) ABC is a triangle in which : $(AB)^2 < (AC)^2 + (BC)^2$, then $\angle$ C is ....

2 Choose the correct answer :

(1) ABC is a triangle in which : $(BC)^2 = (AB)^2 + (AC)^2$, m ($\angle$ B) = 40° , then m ($\angle$ C) = ...

(a) 90° (b) 40° (c) 50° (d) 60°

(2) A triangle whose side lengths are 6 cm. , 8 cm. and 11 cm. , then its type according to its angles is .... -angled triangle.

(a) right (b) obtuse (c) acute (d) straight

(3) If Δ ABC ~ Δ DEF and m ($\angle$ B) + m ($\angle$ C) = 70° , then m ($\angle$ D) = ...

(a) 70° (b) 35° (c) 140° (d) 110°

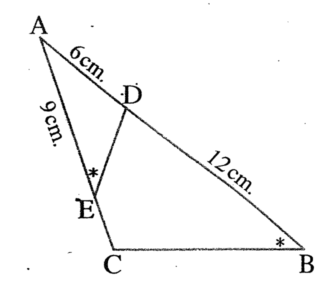
(4) The length of the projection of a line segment on a given straight line .... the length of the original line segment.

(a) < (b) ≤ (c) ≥ (d) =

(5) If Δ ABC ~ Δ XYZ , AB = 5 cm. , XY = 10 cm. and YZ = 8 cm., then BC = ... cm.

(a) 3 (b) 4 (c) 5 (d) 6

3 **In the opposite figure :**



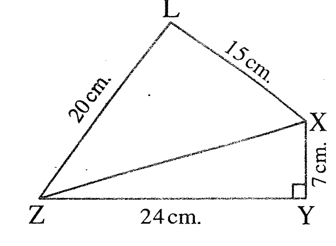
m ($\angle$ AED) = m ($\angle$ B) , AD = 6 cm.

AE = 9 cm. , DB = 12 cm.

(1) **Prove that :** Δ ADE ~ Δ ACB

(2) **Find :** The length of $\overline{EC}$

4 **In the opposite figure :**



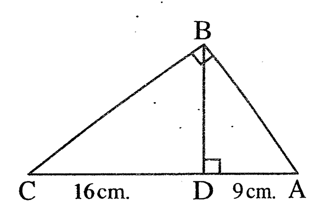
m ($\angle$ XYZ) = 90° , XY = 7 cm.,

YZ = 24 cm. , LX = 15 cm. , LZ = 20 cm.

(1) **Find :** The length of $\overline{XZ}$

(2) **Prove that :** m ($\angle$ XLZ) = 90°

5 **In the opposite figure :**



Δ ABC is a right-angled at B , $\overline{BD} \perp \overline{AC}$,

AD = 9 cm. and CD = 16 cm.

Find : (1) The length of $\overline{AB}$

(2) The length of $\overline{BD}$

Additional question

[a] Choose the correct answer :

(1) The area of the triangle is equal to .... the area of the parallelogram which has a common base and its vertex lies on the straight line parallel to this base.

(a) equal to (b) half (c) twice (d) quarter

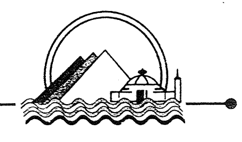
(2) A square of area 18 cm^2 the length of its diagonal = ... cm.

(a) 9 (b) 36 (c) 6 (d) 12

[b] The areas of two lands are equal. The first is in the shape of a rhombus where the lengths of its diagonals are 12 m. and 30 m. The second is in the shape of rectangle where the ratio between its two dimensions is 4 : 5 find the lengths of these dimensions.

5 Giza Governorate

Bulak El Dakror Directorate
Dar El Hanan Language School



Answer the following questions :

1 Choose the correct answer from the given ones :

(1) The length of the projection of a given line segment .... the length of the original line.

(a) $<$ (b) $>$ (c) $\leq$ (d) $\geq$

(2) Δ ABC in which : AB = 3 cm. , BC = 5 cm. and AC = 4 cm. , then m ($\angle$ B) .... 90°

(a) $<$ (b) $>$ (c) $=$ (d) twice

(3) **In the opposite figure :**

If Δ ADE $\sim$ Δ ABC

, then the length of $\overline{BC}$ equals .... cm.

(a) 3 (b) 4 (c) 6 (d) 8

(4) The diagonal length of a square whose area is 50 cm^2 equals .... cm.

(a) 10 (b) 30 (c) 40 (d) 50

(5) ABC is triangle in which : $(AB)^2 = (AC)^2 + (BC)^2$ and m ($\angle$ B) = 40° ,

then m ($\angle$ A) = ...

(a) 40° (b) 50° (c) 90° (d) 130°

2 Complete :

(1) The two triangles are similar if the corresponding .... are equal in measure.

(2) In triangle ABC if $(AC)^2 + (AB)^2 < (BC)^2$, then angle A is ....

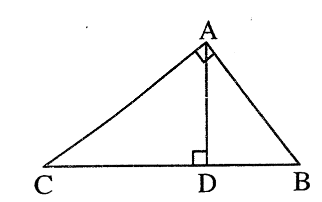
(3) If the ratio between two corresponding side lengths in two similar polygons is 3 : 4

, then the ratio between their perimeters equals ....

(4) The projection of a point on a given straight line is ....

(5) **In the opposite figure :**

Δ ABC $\sim$ Δ ....

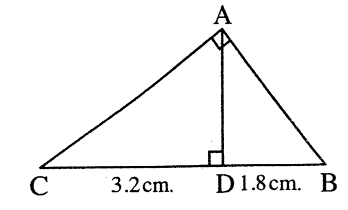


3 [a] In the opposite figure :

Δ ABC is right-angled at A ,

$\overline{AD} \perp \overline{BC}$, BD = 1.8 cm. , CD = 3.2 cm.

Find : The length of each of $\overline{AC}$ and $\overline{AD}$



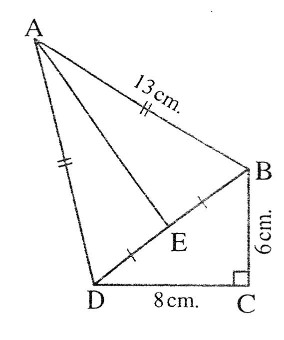
[b] In the opposite figure :

ABCD is a quadrilateral in which : m (∠ C) = 90° ,

AB = AD = 13 cm. , BC = 6 cm. ,

CD = 8 cm. and E is the midpoint of $\overline{BD}$

Find : The area of the quadrilateral ABCD



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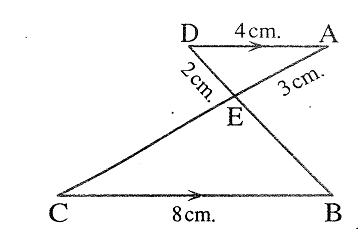
4 [a] **In the opposite figure :**

$\overline{AD}$ // $\overline{BC}$, AD = 4 cm. , BC = 8 cm. ,

AE = 3 cm. and and ED = 2 cm.

(1) **Prove that :** Δ AED ~ Δ CEB

(2) **Find :** The perimeter of Δ EBC



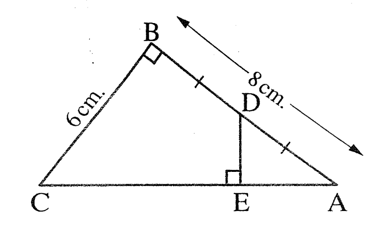
[b] In the opposite figure :

ABC is a right-angled triangle at B

, D is the midpoint of $\overline{AB}$, $\overline{DE} \perp \overline{AC}$

, AB = 8 cm. , BC = 6 cm.

Find : The length of $\overline{DE}$



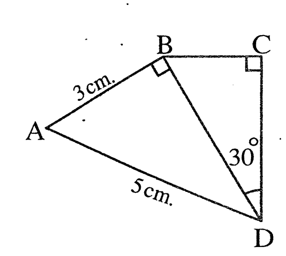
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5 [a] **In the opposite figure :**

ABCD is a quadrilateral in which : m (∠ ABD) = 90° ,

m (∠ BCD) = 90° , m (∠ BDC) = 30° , AB = 3 cm. , AD = 5 cm.

Find : The length of $\overline{BC}$



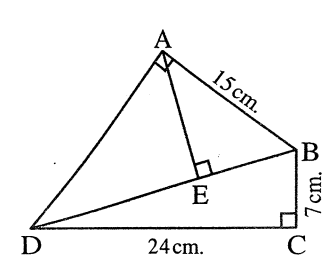
[b] In the opposite figure :

ABCD is a quadrilateral where :

m (∠ BCD) = m (∠ BAD) = 90° , $\overline{AE} \perp \overline{BD}$,

BC = 7 cm. , CD = 24 cm. and AB = 15 cm.

Find : The length of each of $\overline{BD}$, $\overline{AD}$ and $\overline{AE}$



Additional question

[a] Complete :

(1) A trapezium whose two parallel bases lengths are 12 cm. , 18 cm. and its height is 12 cm. , then its area equals .... cm^2.

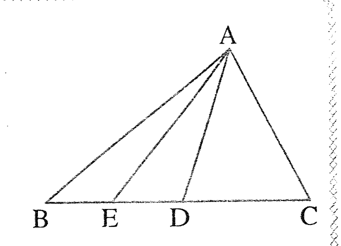
(2) **In the opposite figure :**

ABC is a triangle , D is the midpoint of $\overline{BC}$

and E is the midpoint of $\overline{BD}$

If the area of Δ ABC is 60 cm^2.

, then the area of Δ ABE = ... cm^2.



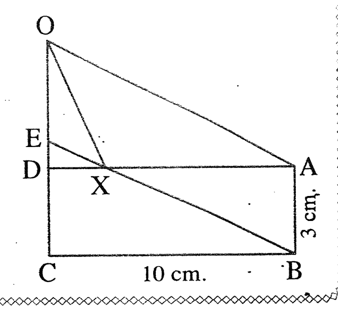
[b] **In the opposite figure :**

ABCD is a rectangle ,

ABEO is a parallelogram ,

AB = 3 cm. and BC = 10 cm.

Find with proof : The area of Δ AXO



6 Alexandria Governorate

East Educational Zone
English Language Schools



Answer the following questions : (Allows the use of a calculator)

1 Complete the following :

(1) The ratio between the lengths of two corresponding sides in two congruent polygons = ...

(2) The line segment joining the midpoints of two sides in triangle .... to the third side.

(3) In triangle XYZ , if m ($\angle$ X) = 90° , then the projection of $\overline{YZ}$ on $\overleftrightarrow{XY}$ is ....

(4) In triangle ABC , if m ($\angle$ A) = 90° , $\overline{AD} \perp \overline{BC}$ and cuts it at D , then $(AC)^2$ = ... × ....

(5) If $(AB)^2 < (AC)^2 + (BC)^2$, then $\angle$ ACB is an .... angle.

2 Choose the correct answer :

(1) If two triangles are similar , then the lengths of the corresponding sides are ....

(a) congruent. (b) equal. (c) proportional. (d) parallel.

(2) If $\angle$ ABC is an obtuse angle , then BC .... AC – AB

(a) > (b) < (c) = (d) ≡

(3) If $\overline{AC}$ is the projection of $\overline{AB}$, then AC .... AB

(a) < (b) ≥ (c) ≤ (d) >

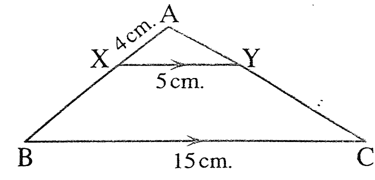
(4) In triangle ABC , if $\overline{AD} \perp \overline{BC}$ and cuts it at D , where AB = 15 cm. , AC = 20 cm. and BC = 25 cm. , then AD = ... cm.

(a) 21 (b) 12 (c) 15 (d) 25

(5) In Δ ABC , if m ($\angle$ B) > m ($\angle$ C) , then AC .... AB

(a) < (b) > (c) = (d) ≥

3 [a] **In the opposite figure :**



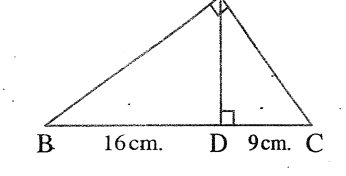
$\overline{XY} // \overline{BC}$, AX = 4 cm. , XY = 5 cm. , BC = 15 cm.

Find with proof : The length of $\overline{XB}$

[b] Determine the type of triangle ABC where AB = 9 cm. , BC = 10 cm. and AC = 15 cm.

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4 [a] **In the opposite figure :**



Complete :

(1) The projection of $\overline{AB}$ on $\overleftrightarrow{BC}$ = ...

(2) The projection of $\overline{AC}$ on $\overleftrightarrow{BC}$ = ...

(3) The projection of $\overline{AD}$ on $\overleftrightarrow{BC}$ = ...

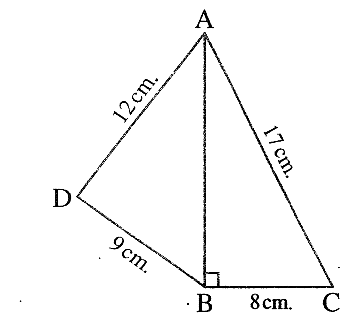
(4) The projection of $\overline{BC}$ on $\overleftrightarrow{AC}$ = ...

[b] From the previous figure :

If BD = 16 cm. and DC = 9 cm. , then find the length of each of $\overline{AD}$, $\overline{AB}$, $\overline{AC}$

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5 [a] **In the opposite figure :**



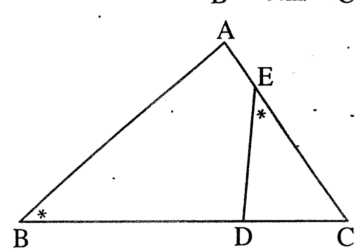
ABC is a right-angled triangle at B ,

AC = 17 cm. , CB = 8 cm. , AD = 12 cm.

and DB = 9 cm.

Prove that : m (∠ ADB) = 90°

[b] In the opposite figure :



m (∠ B) = m (∠ DEC)

Prove that :

Δ ABC ~ Δ DEC

Additional question

[a] Choose the correct answer :

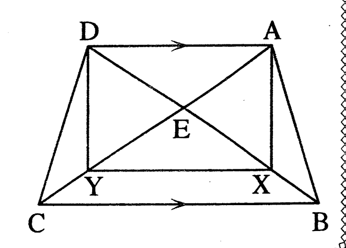
(1) The two base angles of the isosceles trapezium are ....

(a) parallel. (b) congruent. (c) complementary. (d) supplementary.

(2) A square of perimeter 20 cm. , then its area = ... cm^2.

(a) 20 (b) 50 (c) 25 (d) 100

[b] In the opposite figure :



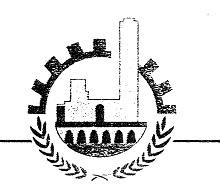
$\overline{AD} // \overline{BC}$

, the area of Δ AXB = the area of Δ DYC

Prove that : $\overline{XY} // \overline{AD}$

7 El-Kalyoubia Governorate

Central Maths Supervision



Answer the following questions :

1 Choose the correct answer :

(1) In Δ ABC , if $(AB)^2 > (BC)^2 + (AC)^2$, then the angle C is ....

(a) acute. (b) right. (c) obtuse. (d) straight.

(2) ABC is a right-angled triangle at B , $\overline{BD} \perp \overline{AC}$

, then the projection of $\overline{BD}$ on $\overleftrightarrow{AC}$ is ....

(a) {A} (b) {B} (c) {C} (d) {D}

(3) If Δ ABC ~ Δ DEF and AB = $\frac{1}{5}$ DE , then the perimeter of Δ ABC = ... the perimeter of Δ DEF .

(a) 5 (b) 1 (c) $\frac{1}{5}$ (d) $\frac{2}{5}$

(4) If the ratio of enlargement between two similar triangles equals .... , then the two triangles are congruent.

(a) 1 (b) 2 (c) 0.5 (d) 0.25

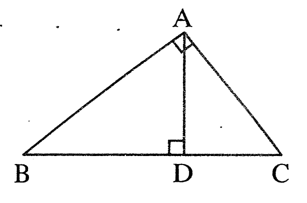
(5) If Δ ABC is right-angled at A and $\overline{AD} \perp \overline{BC}$, then AC × AB = AD × ....

(a) CD (b) DB (c) AD (d) CB

2 Complete :

In the opposite figure :

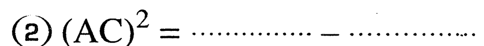
Δ ABC is right-angled at A , $\overline{AD} \perp \overline{BC}$, then :



(1) $(AC)^2$ = ... + ...



(2) $(AC)^2$ = ... – ....



(3) $(AC)^2$ = ... × ....

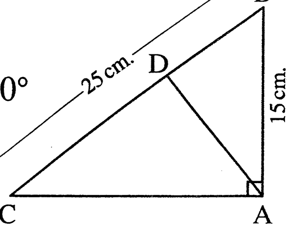
(4) Δ ABC ~ Δ ....

3 [a] ABCD is a parallelogram in which : AB = 8 cm. , AC = 20 cm. and BD = 12 cm.

Prove that : m (∠ ABD) = 90°

[b] In the opposite figure :

AB = 15 cm. , BC = 25 cm. and Δ DBA ~ Δ ABC , m (∠ BAC) = 90°



(1) **Prove that :** $\overline{AD} \perp \overline{BC}$

(2) **Find :** The length of $\overline{BD}$

4 [a] Determine the type of Δ ABC according to its angles

If AB = 2.5 cm. , BC = 1.5 cm. , and AC = 2 cm.

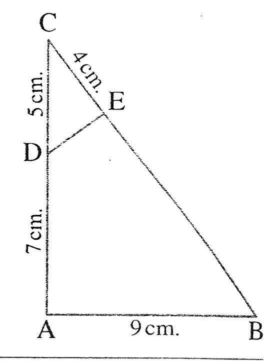
[b] In the opposite figure :

Δ CDE ~ Δ CBA ,

if CD = 5 cm. , AD = 7 cm. ,

CE = 4 cm. and AB = 9 cm.

Find : BE , DE



5 [a] Δ ABC is obtuse - angled at C , $\overline{AD} \perp \overrightarrow{BC}$, AB = 15 cm. , AC = 13 cm. , AD = 12 cm.

Find : The length of $\overline{BC}$

[b] ABC is a triangle , $\overline{AB}$, $\overline{BC}$ and $\overline{CA}$ are bisected at D , E and F respectively.

Prove that : Δ ABC ~ Δ EFD

Additional question

[a] Complete the following :

(1) The median of a triangle divides its surface into two triangles ....

(2) Surfaces of two parallelograms with common base and between two parallel straight lines , one is carrying this base ....

[b] The ratio between the lengths of the two diagonals of a rhombus is 5 : 8 , if its area is 2000 cm^2 , find the length of each of its diagonals.

8 El-Sharkia Governorate

Directorate of Education
Dep. of Governmental L. School



Answer the following questions :

1 Choose the correct answer :

(1) If $\overline{AB} \perp \overline{BC}$, then the projection of $\overline{AB}$ on $\overleftrightarrow{BC}$ is ....

(a) $\overline{AB}$ (b) $\overline{BC}$ (c) {B} (d) $\overline{AC}$

(2) In Δ XYZ , if $(XY)^2 = (XZ)^2 - (YZ)^2$, then $\angle$ Y is .... angle.

(a) right (b) acute (c) obtuse (d) straight

(3) If the length of a rectangle is 8 cm. and its width is 6 cm. , then the length of its diagonal is ....

(a) 8 cm. (b) 6 cm. (c) 9 cm. (d) 10 cm.

(4) If the ratio between two corresponding side lengths in similar two triangles is 1 : 3 , then the ratio between their perimeters is ....

(a) 3 : 1 (b) 2 : 4 (c) 1 : 3 (d) 1 : 1

(5) If ABC is an obtuse-angled triangle at A , in which : AB = 5 cm. , BC = 8 cm. , then AC = ... cm.

(a) 5 (b) 7 (c) 8 (d) 3

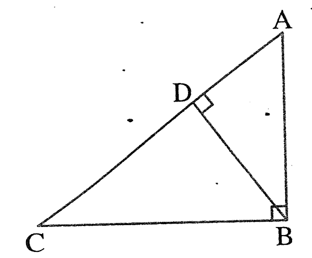
2 Complete the following :

(1) The two polygons are similar if their corresponding side lengths are .... and their corresponding angles are ....

(2) If M is the midpoint of $\overline{AB}$, then $(AB)^2$ = ... $(AM)^2$.

(3) Any two squares are ....

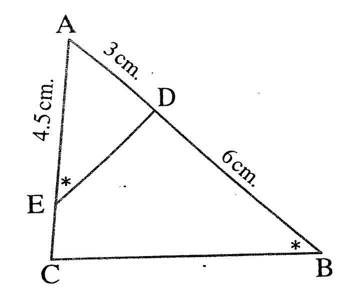
(4) **From the opposite figure :**



(i) $(AB)^2$ = ... + ...

(ii) $(BC)^2$ = ... × ....

3 [a] In the opposite figure :



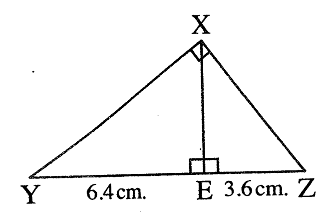
m (∠ AED) = m (∠ B) , AD = 3 cm. ,

AE = 4.5 cm. , BD = 6 cm.

(1) **Prove that :** Δ ADE ~ Δ ACB

(2) **Find :** The length of $\overline{CE}$

[b] In the opposite figure :

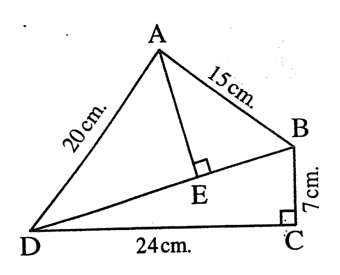


XYZ is a right-angled triangle at X , $\overline{XE} \perp \overline{YZ}$

If EY = 6.4 cm. , EZ = 3.6 cm.

Find : The length of each of : $\overline{XE}$ and $\overline{XY}$

4 In the opposite figure :



ABCD is a quadrilateral , where :

m (∠ BCD) = 90° , $\overline{AE} \perp \overline{BD}$,

BC = 7 cm. , CD = 24 cm. ,

AD = 20 cm. and AB = 15 cm.



(1) **Find :** The length of $\overline{BD}$

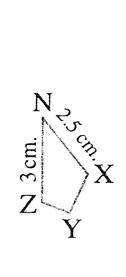
(2) **Prove that :** m (∠ BAD) = 90°

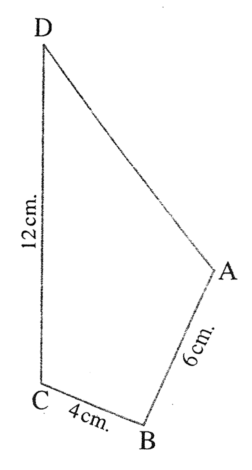
(3) **Find :** The length of the projection of $\overline{AB}$ on $\overleftrightarrow{BD}$

5 [a] Determine the type of the greatest angle in Δ ABC where :

AB = 8 cm. , BC = 10 cm. and AC = 7 cm.

[b] **In the opposite figure :**





The polygon ABCD ~ The polygon XYZN

AB = 6 cm. , BC = 4 cm. ,

CD = 12 cm. , NX = 2.5 cm. , ZN = 3 cm.

Find : The length of each of $\overline{XY}$, $\overline{YZ}$ and $\overline{AD}$

Additional question

[a] **Choose the correct answer :**

(1) If the lengths of the parallel bases of a trapezium are 10 cm. and 8 cm. and its height is 5 cm. , then its area = ... cm^2.

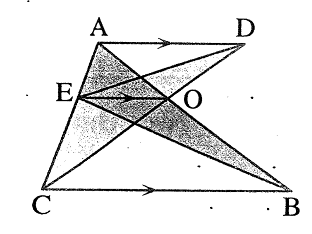
(a) 40 (b) 50 (c) 45 (d) 90

(2) ABCD is a parallelogram , E $\in \overline{BC}$,

then the area of ▱ ABCD = ... the area of Δ EAD

(a) the same (b) half (c) twice (d) third

[b] **In the opposite figure :**



$\overline{AD}$ // $\overline{EO}$ // $\overline{CB}$

Prove that :

Area of Δ DEC = area of Δ AEB

9 El-Monofia Governorate

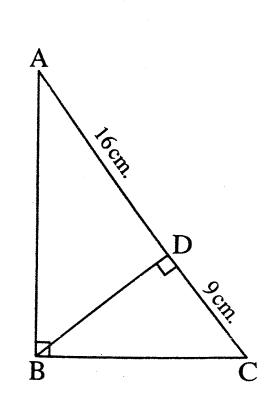
Official Language Schools
The Central Maths Supervision



Answer the following questions :

1 **Choose the correct answer :**

(1) **In the opposite figure :**



The length of $\overline{BD}$ is .... cm.

(a) 9 (b) 16

(c) 12 (d) 15

(2) Δ ABC is an acute-angled triangle where AB = 6 cm. , BC = 8 cm. , then AC = ... cm.

(a) 2 (b) 7 (c) 10 (d) 14

(3) The ratio between the lengths of two corresponding side lengths of two similar polygons is 3 : 5 , then the ratio between their perimeters is ....

(a) 2 : 5 (b) 5 : 3 (c) 3 : 5 (d) 1 : 2

(4) The projection of any point on a straight line is ....

(a) line segment. (b) ray. (c) straight line. (d) point.

(5) If Δ ABC ~ Δ XYZ , AB = 5 cm. , XY = 10 cm. and YZ = 8 cm. , then BC = ... cm.

(a) 3 (b) 4 (c) 5 (d) 6

---

2 Complete the following :

(1) The two polygons are similar if their corresponding side lengths are .... and their corresponding angles are ....

(2) A triangle whose side lengths are 6 cm. , 8 cm. and 11 cm. , its type according to its angles is ....

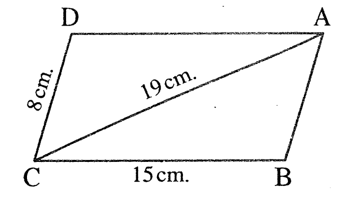
(3) In Δ ABC , if $(AC)^2 + (CB)^2 = (AB)^2 - 9$, then angle C is ....

(4) If $\overrightarrow{AD} \perp \overleftrightarrow{BC}$, then the projection of $\overline{AB}$ on $\overleftrightarrow{BC}$ is ....

(5) All squars are..............

---

3 [a] In the opposite figure :



ABCD is a parallelogram in which : BC = 15 cm. , AC = 19 cm. , DC = 8 cm.

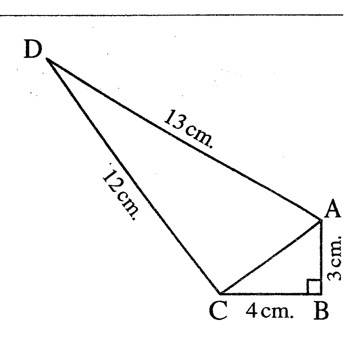
Prove that : $\angle$ ABC is obtuse.

[b] Two triangles are similar , the length of the sides of one of them are 6 cm. , 8 cm. , 10 cm. and the perimeter of the other is 72 cm.

Find : The length of sides of the other triangle.

---

4 [a] In the opposite figure :



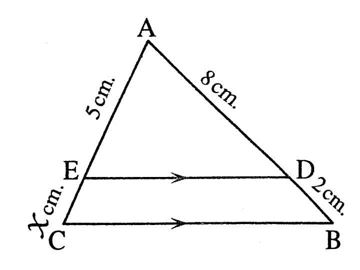
BC = 4 cm. , AD = 13 cm. , AB = 3 cm. , DC = 12 cm. , m ($\angle$ B) = 90°

(1) **Find :** The length of $\overline{AC}$

(2) **Prove that :** m ($\angle$ ACD) = 90°



[b] In the opposite figure :

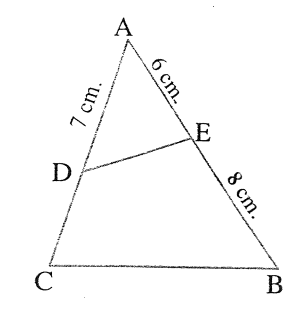


ABC is a triangle in which : $\overline{DE}$ // $\overline{BC}$, BD = 2 cm. , AD = 8 cm. , AE = 5 cm. , CE = x cm.

(1) **Prove that :** Δ ADE ~ Δ ABC

(2) **Find :** The value of x

5 [a] **In the opposite figure :**



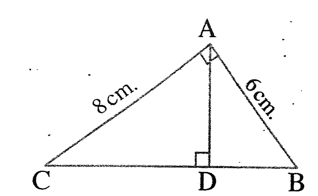
$\Delta ABC \sim \Delta ADE$

, AE = 6 cm. , AD = 7 cm. , BE = 8 cm.

Find : (1) The length of $\overline{DC}$

(2) $\frac{DE}{BC}$

[b] **In the opposite figure :**



ABC is a right-angled triangle at A , $\overline{AD} \perp \overline{BC}$

Find with proof :

(1) The length of each of $\overline{BC}$ and $\overline{AD}$

(2) The length of the projection of $\overline{AB}$ on $\overleftrightarrow{BC}$

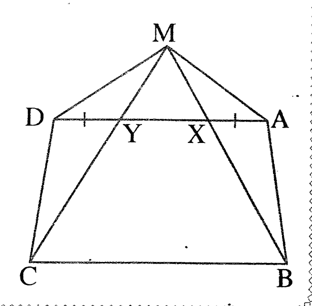
Additional question

[a] **Complete the following :**

(1) The diagonals of the isosceles trapezium are ....

(2) The area of the rhombus of perimeter 20 cm. and height 3 cm. = ...

[b] **In the opposite figure :**



ABCD is a quadrilateral.

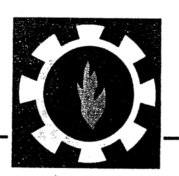
$X \in \overline{AD}$ and $Y \in \overline{AD}$ such that AX = YD

, the area of Δ ABM = the area of Δ DCM

Prove that : $\overline{AD} // \overline{BC}$

10 Suez Governorate

Educational Directorate
Maths Inspectorate



Answer the following questions :

1 **Complete :**

(1) In Δ ABC , if $(AB)^2 = (BC)^2 + (AC)^2$, then m ($\angle$ ....) = 90°

(2) If $\overline{AD} \perp \overleftrightarrow{BC}$, then the projection of $\overline{AD}$ on $\overleftrightarrow{BC}$ is ....

(3) Two polygons are similar if their corresponding side lengths are .... and their corresponding angles are ....

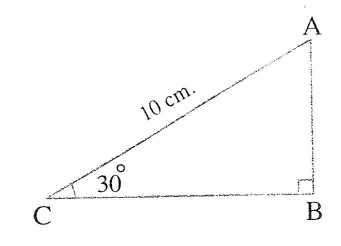
(4) A triangle whose side lengths are 6 cm. , 8 cm. , 11 cm. , then its type according to its angle is ....

(5) **In the opposite figure :**

AC = 10 cm. , m (∠ C) = 30° ,

m (∠ B) = 90°

AB = ... cm.



2 Choose the correct answer :

(1) If $\overline{AB} \parallel \overleftrightarrow{XY}$, then the length of the projection of $\overline{AB}$ on $\overleftrightarrow{XY}$ .... the length of $\overline{AB}$

(a) > (b) = (c) ≤ (d) <

(2) In Δ ABC , if $(AB)^2 > (AC)^2 + (BC)^2$, then ∠ C is .... angle.

(a) acute (b) obtuse (c) right (d) straight

(3) If Δ ABC ~ Δ DEO , AB = $\frac{1}{4}$ DE

, then the perimeter of Δ ABC = ... the perimeter of Δ DEO

(a) 4 (b) 2 (c) $\frac{1}{4}$ (d) $\frac{1}{2}$

(4) ABC is a right-angled triangle at B , AC = 10 cm. , BC = 8 cm. , AB = ... cm.

(a) 8 (b) 6 (c) 4 (d) 5

(5) If the ratio of enlargement between two triangles equals 1 , then the two triangles are ....

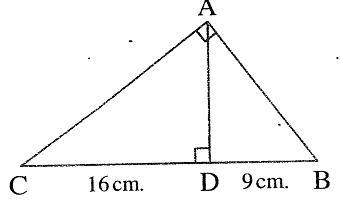
(a) congruent. (b) different. (c) right-angled.

3 [a] In the opposite figure :

m (∠ BAC) = 90° , $\overline{AD} \perp \overline{BC}$,

BD = 9 cm. , DC = 16 cm.

Find : The length of each of $\overline{AD}$, $\overline{AB}$ and $\overline{AC}$

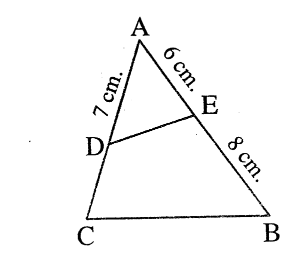


[b] In the opposite figure :

Δ ABC ~ Δ ADE ,

AE = 6 cm. , EB = 8 cm. , AD = 7 cm.

Find : The length of $\overline{DC}$ and the ratio $\frac{DE}{BC}$



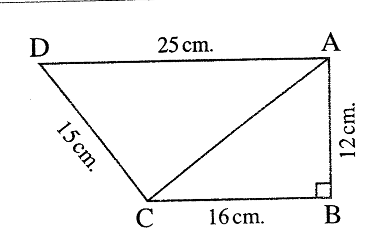
4 [a] In the opposite figure :

AB = 12 cm. , BC = 16 cm. , AD = 25 cm. ,

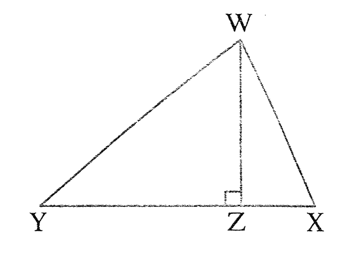
DC = 15 cm. , m (∠ B) = 90°

Find : The length of $\overline{AC}$

Prove that : ∠ ACD is right.



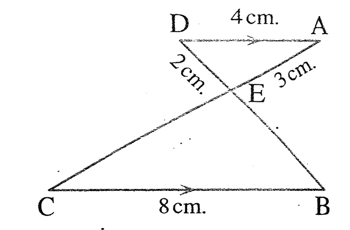
[b] In the opposite figure :



(1) The projection of $\overline{WX}$ on $\overleftrightarrow{XY}$ is ....

(2) The projection of $\overline{WY}$ on $\overleftrightarrow{XY}$ is ....

5 [a] **In the opposite figure :**



$\overline{AD} // \overline{BC}$, AE = 3 cm. , DE = 2 cm. ,

AD = 4 cm. , BC = 8 cm.

Prove that : Δ AED ~ Δ CEB , then find the length of $\overline{CE}$

[b] Detrermine the type of Δ ABC according to its angles if AB = 8 cm. ,

BC = 9 cm. , CA = 7 cm.

Additional question

[a] Choose the correct answer :

(1) If two triangles are equal in area and drawn on the same base , then their vertices are on a straight line ....

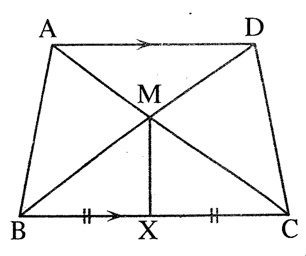
(a) perpendicular to the base. (b) bisects the base.

(c) parallel to the base. (d) cuts the base.

(2) The lengths of the two adjacent sides in a parallelogram are 7 cm. , 5 cm. and its smallest height is 4 cm. , then the area of the parallelogram equals .... cm^2.

(a) 35 (b) 25 (c) 28 (d) 20

[b] In the opposite figure :



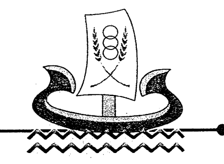
$\overline{AD} // \overline{BC}$, X is the midpoint of $\overline{BC}$

Prove that :

The area of the figure ABXM = the area of the figure DCXM

11 Kafr EL-Sheikh Governorate

Maths Inspection



Answer the following questions :

1 **Choose the correct answer :**

(1) ABC is an obtuse - angled triangle at A in which : AB = 5 cm. , BC = 8 cm.

, then AC = ... cm.

(a) 5 (b) 7 (c) 8 (d) 13

(2) ABC is a triangle in which : $(AB)^2 = (AC)^2 + (BC)^2$, m (∠ B) = 40° ,

then m (∠ A) = ...

(a) 40° (b) 50° (c) 90° (d) 130°

(3) **In the opposite figure :**

Δ ADE ~ Δ ABC ,

then the length of $\overline{BC}$ = ... cm.

(a) 3 (b) 4 (c) 6 (d) 8

(4) If the ratio of enlargement between two triangles equales 1 , then the two triangles are ....

(a) congruent. (b) different. (c) right-angled. (d) coincide.

(5) If the ratio between the lengths of two corresponding sides of two similar polygons is 3 : 5 , then the ratio between their perimeters is ....

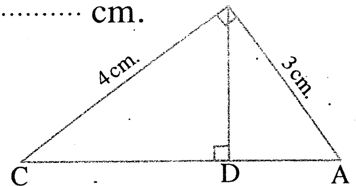
(a) 2 : 5 (b) 5 : 3 (c) 3 : 5 (d) 1 : 2

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2 Complete :

In the opposite figure :

m (∠ B) = 90° , $\overline{BD} \perp \overline{AC}$



(1) $(AC)^2$ = ... + ... = ... cm^2 , then AC = ... cm.

(2) The projection of $\overline{AB}$ on $\overleftrightarrow{AC}$ is ....

(3) $(BD)^2$ = AD × ....

(4) $(BC)^2$ = CA × ....

(5) Δ ABC ~ Δ .... ~ Δ ....

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3 [a] **In the opposite figure :**

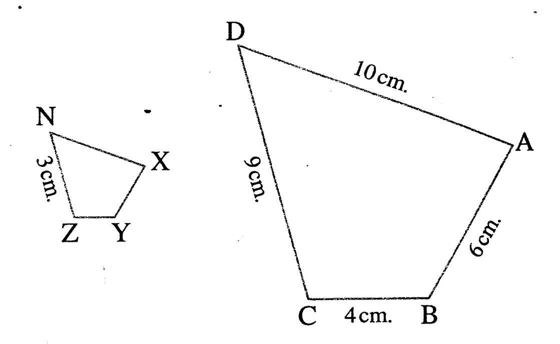
The polygon ABCD ~ The polygon XYZN

, AB = 6 cm. , BC = 4 cm. , CD = 9 cm.

, DA = 10 cm. , ZN = 3 cm.

Find :

The length of each of $\overline{XY}$, $\overline{YZ}$, $\overline{XN}$

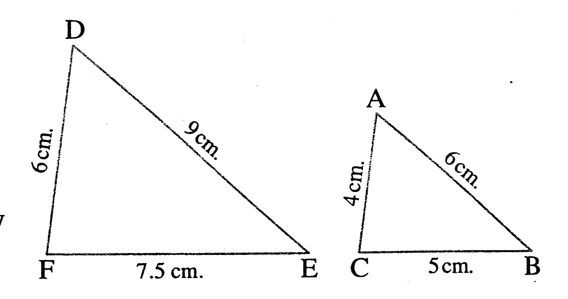


[b] **In the opposite figure :**

Prove that :

(1) Δ DEF ~ Δ ABC

(2) $\frac{\text{Perimeter of } \Delta \text{ DEF}}{\text{Perimeter of } \Delta \text{ ABC}}$ = the ratio of the similarty

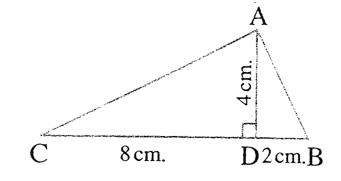


4 [a] **In the opposite figure :**

ABC is a triangle in which : BD = 2 cm.

, CD = 8 cm. , AD = 4 cm. , $\overline{AD} \perp \overline{BC}$

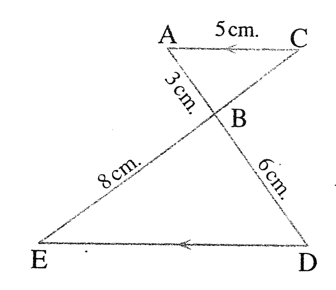
Prove that : m (∠ BAC) = 90°



[b] **In the opposite figure :**

(1) **Prove that :** Δ ABC ~ Δ DBE

(2) **Find :** The length of each of $\overline{BC}$, $\overline{DE}$



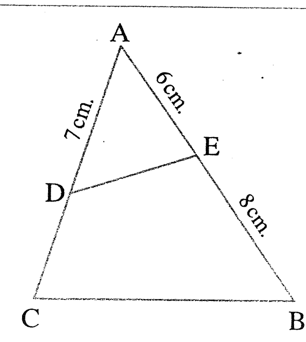
5 **In the opposite figure :**

If Δ ABC ~ Δ ADE , AE = 6 cm.

, AD = 7 cm. , BE = 8 cm.

Find : (1) The length of $\overline{DC}$


(2) $\frac{DE}{BC}$



Additional question

[a] **Complete each of the following :**

(1) A trapezium whose base lengths are 6 cm. , 8 cm. and its height is 5 cm. , then its area = ... cm^2.

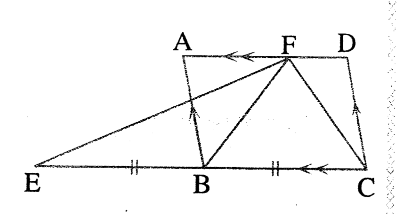
(2) ABCD is parallelogram , E ∈ $\overline{DC}$, if the area of Δ AEB = 25 cm^2. , then the area of parallelogram ABCD = ... cm^2.

[b] **In the opposite figure :**

ABCD is a parallelogram

, E ∈ $\overleftrightarrow{BC}$ where BE = BC , F ∈ $\overline{AD}$

Prove that : The area of Δ EFC = the area of ▱ ABCD



12 El-Beheira Governorate

Central Maths Supervision



Answer the following questions :

1 **Complete :**

(1) The two polygons are similar to a third palygon are ....

(2) If $\overline{XY} \perp \overleftrightarrow{AB}$ at the point Y , then the projection of $\overline{XY}$ on $\overleftrightarrow{AB}$ is ....

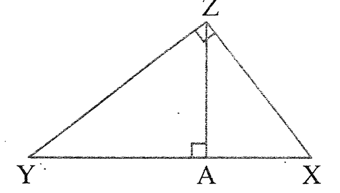
(3) The two triangles are similar if its corresponding side lengths are ....

(4) Δ ABC in which : $(AC)^2 + (BC)^2 = (AB)^2$, m ($\angle$ A) = 65° , then m ($\angle$ B) = ... °

(5) If the ratio of enlargement between two similar triangles equals 1 , then the two triangles are ....

2 Choose the correct answer :

(1) **In the opposite figure :**



$(ZA)^2 = YA \times$ ....

(a) YX (b) AX

(c) ZY (d) ZX

(2) Δ ABC is an obtuse-angled triangle at B , AB = 3 cm. , BC = 5 cm. , then AC = ... cm.

(a) 8 (b) 7 (c) 15 (d) 4

(3) The length of the projection of a given line segment .... the length of the original line segment.

(a) $\geq$ (b) > (c) $\leq$ (d) <

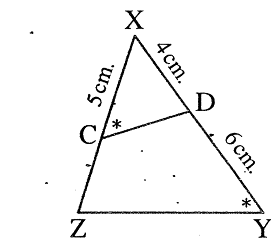
(4) In Δ ABC , if $(AC)^2 - (BC)^2 > (AB)^2$, then $\angle$ A is ....

(a) acute. (b) right. (c) obtuse. (d) straight.

(5) The perpendicular segment drawn from the right angle of the right-angled triangle to the hypotenuse divides it into two .... triangles.

(a) obtuse-angled (b) acute-angled (c) equilateral (d) similar

3 [a] In the opposite figure :

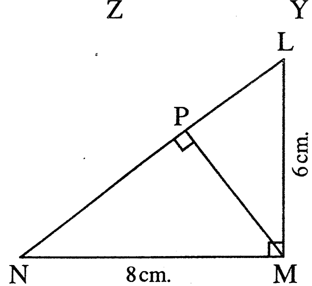


m ($\angle$ XCD) = m ($\angle$ Y) , XD = 4 cm.

, XC = 5 cm. , DY = 6 cm. ,

Prove that : Δ XCD ~ Δ XYZ , then calculate length of $\overline{CZ}$

[b] In the opposite figure :



m ($\angle$ M) = 90° , $\overline{MP} \perp \overline{NL}$

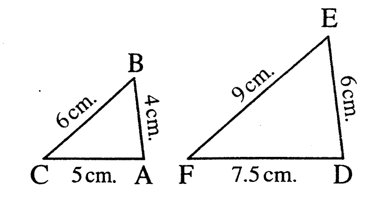
, LM = 6 cm. , MN = 8 cm.

Find : The length of each of $\overline{NP}$ and $\overline{MP}$

4 [a] In Δ XYZ , XY = 7 cm. , YZ = 9 cm. and XZ = 12 cm.

Determine the type of the angle Z

[b] In the opposite figure :



Prove that : (1) Δ ABC ~ Δ DEF

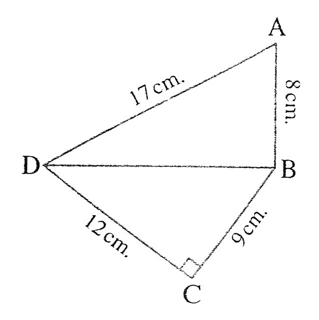
(2) $\dfrac{\text{perimeter of } \Delta \text{ ABC}}{\text{perimeter of } \Delta \text{ DEF}} = \dfrac{2}{3}$

5 **In the opposite figure :**

ABCD is a quadrilateral in which : m (∠ C) = 90° , AB = 8 cm. , BC = 9 cm. , CD = 12 cm. and DA = 17 cm.

(1) **Prove that :** m (∠ ABD) = 90°

(2) **Find :** The projection of $\overline{BD}$ on $\overleftrightarrow{CD}$



Additional question

[a] **Complete each of the following :**

(1) Area of a triangle is equal to half of area of a parallelogram if they have a common ....

(2) The parallelograms with bases equal in length and lying on a straight line , while the opposite sides to these bases are on another straight line are ....

[b] The area of a trapezium is 88 cm^2 , its height is 8 cm. and the length of one of its parallel bases is 10 cm. find the length of the other base.

13 Assiut Governorate

Assiut Educational Zone
Badr Language School



Answer the following questions :

1 **Choose the correct answer :**

(1) If two polygons are similar and the ratio between the lengths of two corresponding sides is 1 : 3 and the perimeter of smaller polygon is 15 cm. , then the perimeter of the greater polygon is .... cm.

(a) 30 (b) 45 (c) 60 (d) 75

(2) ABC is a triangle in which : $(AB)^2 > (AC)^2 + (BC)^2$, then ∠ C is ....

(a) acute. (b) right. (c) obtuse. (d) straight.

(3) If the ratio of enlargement between two similar triangles equals .... , then the two triangle are congruent.

(a) 1 (b) 2 (c) 0.5 (d) 0.25

(4) ABC is a triangle in which : $(AB)^2 = (AC)^2 + (BC)^2$, m (∠ B) = 40° , then m (∠ A) = ...

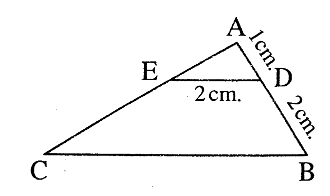
(a) 40° (b) 50° (c) 90° (d) 130°

(5) **In the oposite figure :**

Δ ADE ~ Δ ABC , then the length of $\overline{BC}$ = ... cm.

(a) 3 (b) 4

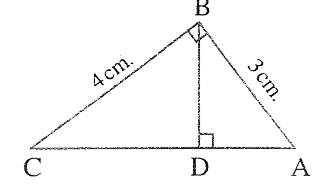
(c) 6 (d) 8



2 [a] **Complete :**

The polygons are similar if the corresponding side lengths are ………….. and the corresponding angles are …………..

[b] **In the opposite figure :**



ABC is a right-angled triangle at B , $\overline{BD} \perp \overleftrightarrow{AC}$

Complete :

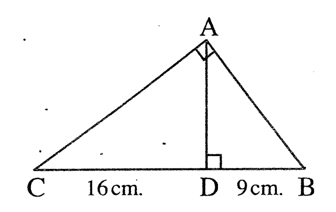
(1) The projection of $\overline{AB}$ on $\overleftrightarrow{AC}$ is …………..

(2) $(BD)^2 = AD \times$ …………..

(3) $(BC)^2 = CD \times$ …………..

(4) The perimeter of Δ BAD : The perimeter of Δ CBD = ………….. : …………..

3 [a] **In the opposite figure :**



If $\Delta ABC \sim \Delta ADE$, AE = 6 cm.

, AD = 7 cm. , BE = 8 cm.

Find : (1) The length of $\overline{DC}$

(2) $\frac{DE}{BC}$

[b] In Δ ABC , if AB = 8 cm. , BC = 10 cm. and CA = 7 cm.

What is the type of Δ ABC according to its angles ?

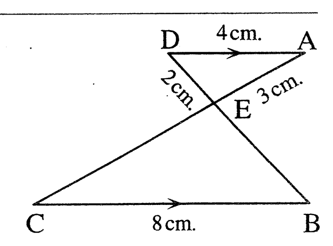


4 [a] **In the opposite figure :**

ABC is a right-angled triangle at A ,

$\overline{AD} \perp \overline{BC}$, BD = 9 cm. , CD = 16 cm.

Find : The length of each of $\overline{AB}$, $\overline{AC}$, $\overline{AD}$



[b] The side lengths of one of two similar triangles are 3 cm. , 4 cm. and 5 cm. and the perimeter of the other triangle is 36 cm. Find the side lengths of the other triangle.

5 [a] **In the opposite figure :**

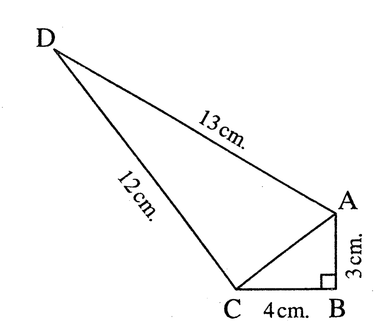
$\overline{AD} // \overline{BC}$, AD = 4 cm. , BC = 8 cm.

, AE = 3 cm. and ED = 2 cm.

(1) **Prove that :** $\Delta AED \sim \Delta CED$

(2) **Find :** The perimeter of Δ EBC

[b] **In the opposite figure :**



AB = 3 cm. , BC = 4 cm. , AD = 13 cm. ,

CD = 12 cm. , m ($\angle$ B) = 90°

Prove that : m ($\angle$ ACD) = 90°

Additional question

[a] Choose the correct answer :

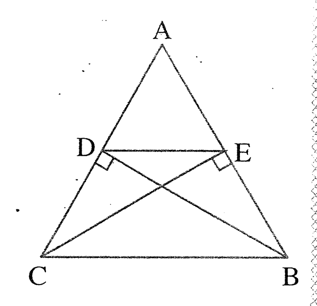
(1) The quadrilateral whose area half square of its diagonal length is ....

(a) parallelogram. (b) rectangle. (c) rhombus. (d) square.

(2) The diagonals of an isosceles trapezium ....

(a) congruent. (b) perpendicular. (c) bisect each other. (d) parallel.

[b] In the opposite figure :



If AB = AC ,

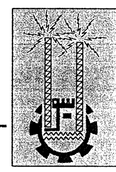
$\overline{BD} \perp \overline{AC}$ and $\overline{CE} \perp \overline{AB}$

Prove that : (1) $\overline{ED} \mathbin{/\mkern-3mu/} \overline{BC}$

(2) The area of Δ ADB = the area of Δ AEC

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Aswan Educational Directorate
Eng. M.M. Yaqoub L. School

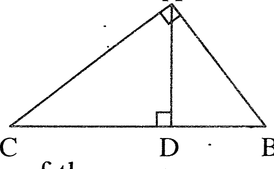


Answer the following questions :

1 Complete each of the following :

(1) The two triangles are similar if their corresponding angles are ....

(2) **In the opposite figure :**



ABC is a right-angled triangle at A

and $\overline{AD} \perp \overline{BC}$, then $(BA)^2 = BD \times$ ....

(3) In a triangle , if the square of the length of a side is equal to the sum of the squares of the lengths of the other two sides , then the angle opposite to this side is a .... angle.

(4) In a parallelogram each two opposite angles are ....

(5) ABC is a triangle in which : $(BC)^2 = (AB)^2 + (AC)^2$, m (∠ B) = 40°

, then m (∠ C) = ... °

2 Choose the correct answer :

(1) If $\overline{AB} \mathbin{/\mkern-3mu/} \overleftrightarrow{XY}$, then the length of the projection of $\overline{AB}$ on $\overleftrightarrow{XY}$ .... the length of $\overline{AB}$

(a) < (b) > (c) = (d) ≤

(2) Δ ABC is an obtuse-angled triangle at B , AB = 3 cm. and BC = 5 cm. ,

then AC can be equal .... cm.

(a) 4 (b) 5 (c) 7 (d) 8

(3) If the ratio between the lengths of two corresponding sides in two similar triangles is equal to .... , then the two triangles are congruent.

(a) 1 (b) 2 (c) 0.5 (d) 0.25

(4) The number of axis of symmetry of the square = ...

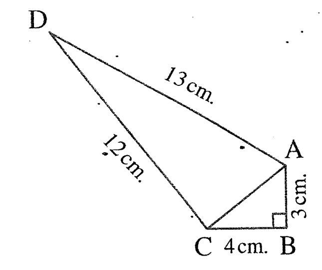
(a) 1 (b) 2 (c) 3 (d) 4

(5) If the measure of the vertex angle of an isosceles triangle is 80° , then the measure of each of its two base angles = ...

(a) 80° (b) 100° (c) 60° (d) 50°

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3 [a] **In the opposite figure :**

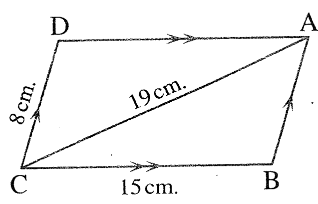


AB = 3 cm. , BC = 4 cm. , AD = 13 cm.

CD = 12 cm. , m (∠ B) = 90°

Prove that : m (∠ ACD) = 90°

[b] **In the opposite figure :**



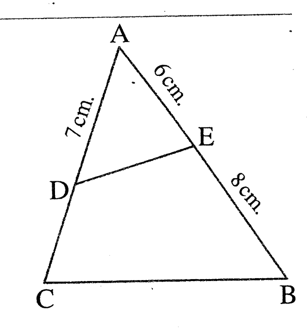
ABCD is a parallelogram in which :

BC = 15 cm. , CD = 8 cm. and AC = 19 cm.

Prove that : ∠ ABC is an obtuse-angled.

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4 [a] **In the opposite figure :**



If Δ ABC ~ Δ ADE , AE = 6 cm. ,

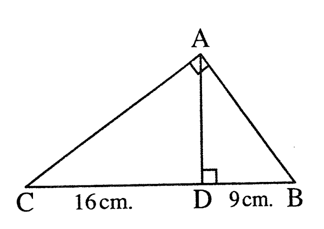
AD = 7 cm. , BE = 8 cm.

Find : (1) The length of $\overline{DC}$ (2) $\frac{DE}{BC}$

[b] Determine the type of the greatest angle in Δ ABC where AB = 8 cm. , BC = 10 cm. and AC = 7 cm.

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5 **In the opposite figure :**



ABC is a right-angled triangle at A ,

$\overline{AD} \perp \overline{BC}$, BD = 9 cm. , CD = 16 cm.

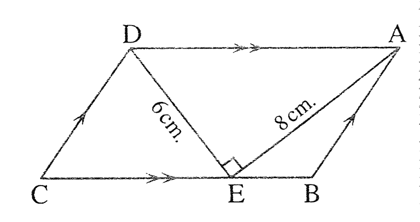
Find : (1) The length of $\overline{AB}$

(2) The length of $\overline{AC}$

(3) The length of the projection of $\overline{AC}$ on $\overleftrightarrow{AD}$

Additional question

[a] Complete the following :

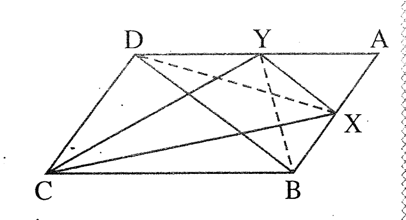


(1) **In the opposite figure :**

Area of ▱ ABCD = ... cm^2.

(2) The median of a triangle divides its surface into two triangles .... in area.

[b] In the opposite figure :



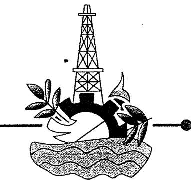
ABCD is a parallelogram , $X \in \overline{AB}$, $Y \in \overline{AD}$

such that : area of Δ CBX = area of Δ CYD

Prove that : $\overline{XY} \parallel \overline{BD}$

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Educational Directorate
Tur Sinai Educational Zone



Answer the following questions :

1 Choose the correct answer :

(1) If m (∠ ABC) = 45° , then m (reflex ∠ ABC) = ...

(a) 45° (b) 90° (c) 270° (d) 315°

(2) Two similar polygons , if the ratio between two corresponding side lengths is 3 : 5 , then the ratio between their perimeters is ....

(a) 5 : 2 (b) 5 : 3 (c) 3 : 5 (d) 1 : 2

(3) In the triangle ABC , if $(AB)^2 > (BC)^2 + (AC)^2$, then ∠ C is ....

(a) obtuse angle. (b) straight angle. (c) right angle. (d) acute angle.

(4) If ∠ A complements ∠ B and ∠ B supplements ∠ C and m (∠ A) = 30° then m (∠ C) = ...

(a) 150° (b) 120° (c) 60° (d) 30°

(5) The two triangles are congruent if the ratio of magnification = ...

(a) 0.25 (b) 0.5 (c) 0.75 (d) 1

2 Complete the following :

(1) The type of the triangle whose side lengths are 6 cm. , 8 cm. and 10 cm. is .... -angled triangle.

(2) The two triangles are similar if the corresponding angles are .... in measure.

(3) The length of the projection of a line segment on a given straight line .... the length of the original line segment.

(4) The number of the diagonals of the quadrilateral is ....

(5) In Δ ABC , if $(AC)^2 = (AB)^2 + (BC)^2$, then m (∠ ....) = 90°

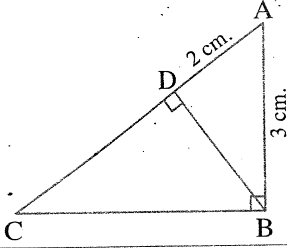
3 [a] Determine the type of the greatest angle of the triangle ABC where AB = 8 cm. , BC = 10 cm. , AC = 7 cm. What is the type of the triangle according to measures of its angles ?

[b] In the opposite figure :

ABC is a right-angled triangle at B ,

AB = 3 cm. , AD = 2 cm. , $\overline{BD} \perp \overline{AC}$

Find : the length of $\overline{DC}$



4 [a] **In the opposite figure :**

m (∠ AED) = m (∠ B)

Prove that : Δ ADE ~ Δ ACB

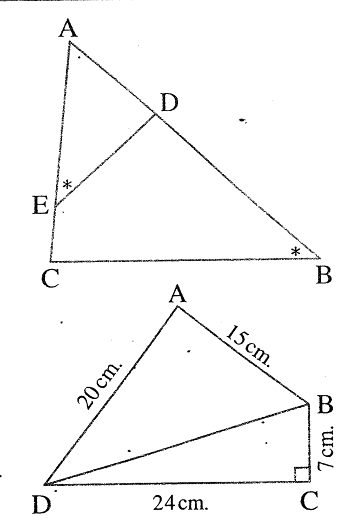
[b] In the opposite figure :

m (∠ C) = 90° , AB = 15 cm. , BC = 7 cm. ,

CD = 24 cm. , AD = 20 cm.

(1) **Find :** The length of $\overline{BD}$

(2) **Prove that :** m (∠ A) = 90°



5 [a] **In the opposite figure :**

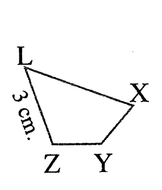
The polygon ABCD ~ The polygon XYZL ,

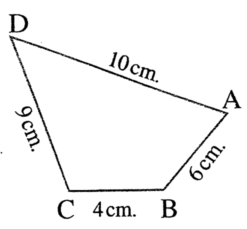
AB = 6 cm. , BC = 4 cm. ,

CD = 9 cm. , DA = 10 cm. ,

ZL = 3 cm.

Find : The perimeter of the polygon XYZL





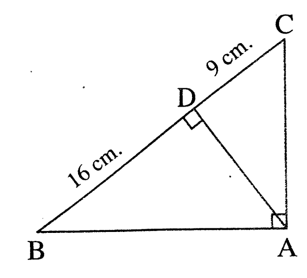
[b] In the opposite figure :

ABC is a right-angled triangle at A ,

$\overline{AD} \perp \overline{BC}$, BD = 16 cm. ,

DC = 9 cm.

Find : The length of each of $\overline{AB}$ and $\overline{AD}$



Additional question

[a] Choose the correct answer :

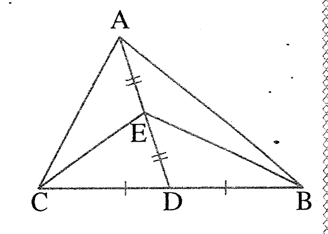
(1) The ratio between the area of the parallelogram and the area of the triangle whose base is common and are included between two parallel straight lines = ...

(a) 1 : 2 (b) 1 : 3 (c) 4 : 2 (d) 2 : 3

(2) If ABCD is a parallelogram in which : AB = 5 cm. , BC = 10 cm. and its smaller height is 4 cm. , then its greater height = ...

(a) 2 cm. (b) 4 cm. (c) 8 cm. (d) 10 cm.

[b] In the opposite figure :



$\overline{AD}$ is a median of Δ ABC ,

E is the midpoint of $\overline{AD}$

Prove that : Area of Δ EBC = $\frac{1}{2}$ area of Δ ABC